CITY OF MANCHESTER.

REPORT

ON THE

Health of the City of Manchester,

1916.

BY

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PUBLIC HEALTH OFFICE,

MANCHESTER,

15th November, 1917.

MY LORD MAYOR, ALDERMEN,

AND MEMBERS OF THE CITY COUNCIL,

I have the honour to submit to you my Annual Report on the health of Manchester for the year 1916.

It will be seen from the figures given on the front page that infantile mortality is unprecedentedly low.

The general recorded death-rate is also lower than in any previous year, since there seems to be no doubt that the Registrar-General's estimate of the civil population is far too low. Unfortunately, also, the birth-rate continues to descend.

The mortality from infectious diseases was unusually low, except from Tuberculosis, in which, however, a reduction is shown when we compare 1916 with 1915.

The rate of incidence was, also, comparatively low from infectious diseases other than Tuberculosis.

The Measles Order of the Local Government Board has made it possible to exercise a much greater amount of supervision over that disease than could be exercised before, and useful work has been done.

It remains to extend the same supervision to Whooping Cough. That will involve making Whooping Cough a notifiable disease.

No material change has occurred in the number of cases of Ophthalmia Neonatorum reported. But the results attained are good.

A short report by Dr. McClure on the spread of Anthrax by shaving brushes forms interesting reading. The outbreaks were promptly dealt with both centrally and locally, and a report on this hitherto unsuspected source of danger has been issued by the Local Government Board.

The increased and increasing activity shown in connection with the protection of child life and the prevention of infant mortality, the great fall which has recently taken place in the mortality among infants, and the profound importance of this subject have appeared to render a review of this subject desirable. Consideration of this question entails consideration of measures

affecting maternity. There is, perhaps, some danger that the good work done by St. Mary's and the Northern Hospitals may not be adequately acknowledged. But there is greater danger that we may rest satisfied with what has already been achieved by these Institutions and by the Midwives Supervising Committee.

We cannot stop at our present point of progress. Pressure increases in every department of this work, and is, of course, most conspicuous at the Child Welfare Centres. The notification of Measles, and the work done in connection with Diarrhœa have trenched on the needful activities of the Health Visitors' Staff, and a gradual extension in that department will be needed. Special attention has been given to these matters in the Annual Report, and the facts will be found set forth in detail.

The subject of Day Nurseries is receiving careful attention. It will be matter for careful and anxious consideration what are the measures by which the downward course of the birth-rate and of our civilisation may be arrested. Improvement in the conditions of maternity appears to be a primary need.

Attention is directed to the Articles on the Notification of Tuberculosis, and to the Report of the Senior Tuberculosis Officer.

It is, in one way, gratifying that the number of new cases of Pulmonary Tuberculosis continues high, as it indicates, what we believe to be true, that the medical profession are giving increased attention to the need for early recognition of this disease.

At the same time it is matter for grave concern that the increase in the number notified affects both adults and children.

Dr. Sutherland's Report deals, in part, with economic considerations, and records a vast amount of administrative work. It touches on the extension of Sanatorium treatment, which was considered in a previous report. The manner in which this extension can be most economically and profitably carried out is a problem which calls for a solution.

As in other departments of work, the supervision of the milk supply has suffered from shortage of workers.

Tuberculous infection in milk arriving in Manchester has increased. The sale of fresh milk is no longer the most profitable use to which milk farms may be put, a circumstance which will not tend to raise the quality of the milk supply. Under these circumstances, it seems desirable that the Council should be informed of the difficulties attaching to the milk supply and of the action so far taken.

Other special sections deal with stables, housing, workshops, and nuisances, also with work done in connection with the supervision of army contracts, and the inspection of billets.

Reports from the Medical Superintendent of Monsall Hospital, Baguley Sanatorium, and Abergele Sanatorium occupy part of the Report, as do also the Reports sent in by the Sanitary Superintendent and the Superintendent of the Cleansing Department.

The Report of the Executive Officer to the Midwives Supervising Committee shows a year of good work, and *inter alia* brings out the great value of the Special Nurses attached to that department.

Amongst the pressing sanitary questions of the time, the provision of an adequate number of suitable houses must be regarded as the most urgent.

In conclusion I have to thank the Council and Committees for their continued support, and my colleagues for the valuable assistance which they have given me.

Unhappily, at the present time, no fewer than four Medical and Veterinary Officers are absent out of a permanent male medical and veterinary office staff of seven.

I have the honour to be,

Your obedient Servant,

JAMES NIVEN.

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ANNUAL REPORT.

STATISTICAL.

The following are general statistics for the year 1916 :—

Area of the City in acres			20,799
Estimated population at the middle of 1916	Males	362,923	754,531
	Females	391,608	
No. of persons per acre			36
No. of families or separate occupiers at the Census taking, 1911			152,317
Persons married per 1,000 of population in the Manchester Union			15·38
Births in the City of Manchester	Males	7,953	15,570
	Females	7,617	
Annual birth-rate per 1,000 of population			20·64
Deaths	Males	5,637	10,999
	Females	5,362	
Recorded annual death-rate per 1,000 of population	Males	15·53	14·58 persons
	Females	13·68	
Deaths under 1 year of age per 1,000 births			111·24
Excess of registered births over deaths			4,571
Estimated increase of population during the year			7,738
Percentage mortality occurring in public institutions			33·19
Registrar-General's estimated Civil population			682,608
Death-rate based on Civil population			16·11

On the front page are given the usual figures relating to the Health of Manchester during the year 1916.

It will be seen that the birth-rate and death-rate for the year 1916 are both below those recorded in any previous year, if the population be estimated at 754,531, taking the usual calculated rate of increase. If, however, the Registrar-General's estimate be adopted, viz., 682,608, the crude death-rate is lower than in any other year except 1910 and 1913, to which it approximates, while the birth-rate on this estimate is somewhat higher than in 1915. This is very unlikely. It is very difficult to form an estimate of the population. But it is certain that there is great scarcity of houses at rentals under 8s. 6d.—considerably greater than at the Census. The extent to which houses at a higher rental are available is not so certain, but there is reason to believe that these also are in full demand.

There is a great volume of industry in Manchester, and there are various indications that workers are in much request. On the other hand, in certain departments there is a marked scarcity of men to carry on the business, and it has not been found possible to get an estimate of population by the ordinary interim methods.

So far as one can form a judgment from the known facts, it is probable that the population stands at some intermediate figure between the two estimates, and probably nearer to 755,000 than to 683,000.*

If this be the case, the death-rate is easily the lowest recorded, while the birth-rate shows a decline on any previous year.

The marriage-rate shows a decrease on previous years.

Infantile mortality shows a marked reduction, whether our own figure (111) or the Registrar-General's figure (109) per 1,000 born be accepted.

The chief causes of death are shown on page 3, with comparative figures for 1913, 1914, 1915, and 1916.

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* An attempt has been made in the beginning of September, 1917, to arrive at an estimate as follows:—From information supplied by the Waterworks Department, there were at that time 154,697 houses in occupation, which, taking the Census rate of occupation per house, viz., 4·7, gives 727,076. At the Census there were otherwise than in private houses, 26 292 persons. Increasing this in the ratio $\frac{727,076}{719,333}$ we have 26,761. Adding these figures we get 753,837. There may be doubt as to whether the density per house has not diminished. But the impression of the Inspectors of Nuisances is that it has not.

The chief causes of death during the year are shown below compared with the corresponding figures for 1913, 1914, and 1915 :—

	1913		1914		1915		1916	
Tuberculosis of the Lungs	1056		1257		1315		1238	
Tuberculosis of Organs other than the Lungs	383		366		313		348	
Diseases of the Heart	1012		1048		1163		1025	
Cerebral Hæmorrhage, Apoplexy, Hemiplegia.....	497		490		543		553	
Pneumonia	1178		1289		1089		944	
Bronchitis	1127		1136		1278		1207	
Digestive Organs	557		538		517		454	
Atrophy, Debility (chiefly in infants)	350		305		277		164	
Old Age	435		502		520		429	
Premature Birth.....	389		409		350		317	
Nephritis and Bright's Disease	301		369		369		335	
Convulsions.....	72		79		58		74	
Inflammation of the Brain	125		110		98		74	
Diarrhœa and Dysentery.....	622		524		488		313	
Measles.....259	597	293	847	447	705	179	581	
Scarlet Fever 94		160		83		35		
Whooping Cough 139		283		70		300		
Diphtheria 105		111		105		67		
Influenza.....	122		113		136		133	
Malignant Disease..... ..	727		738		775		794	

It will be noted that the number of deaths from Tuberculosis, though still high, is below that for 1914 and 1915.

A still further fall occurs in the number of deaths from Pneumonia. There is also a decided drop in the number of deaths from Diseases of the Digestive Organs. From Nephritis the number of deaths is less than in the two previous years. Under Old Age also the mortality is lower than in the three previous years.

But it is amongst children that the most conspicuous diminution of mortality occurs, under the headings Atrophy and Debility, Premature Birth, Inflammation of the Brain, and Infectious Disease.

The mortality from Influenza shows no increase, but unhappily that from Malignant Disease has again increased.

Diseases of the Circulation continue to exact a high rate of mortality.

If we compare the death-rates per 1,000 of total population under a number of heads with the average for the years 1906–1915, we see that there is an aggregate gain of 3·15 per 1,000 for the year over the average.

The principal gains are in respect of Pneumonia, Diseases of the Nervous System, Diarrhœal Diseases, Measles, Diphtheria, Premature Birth, and Diseases of the Digestive System.

The chief loss is in respect of Cancer.

Gains in 1916 *per* 1,000 *persons living, as compared with the average for the* 10 *years,* 1906-1915—(See Table K).

Measles	0·29
Scarlet Fever	0·10
Diarrhœal Diseases	0·49
Diphtheria	0·18
Enteric Fever	0·06
Erysipelas	0·01
Pyæmia	0·02
Phthisis	0·03
Tubercular Diseases (other)	0·11
Alcoholism	0·05
Premature Birth	0·18
Nervous Diseases	0·44
Heart and Blood Vessel Diseases	0·06
Bronchitis	0·12
Pneumonia	0·64
Respiratory Diseases (other)	0·05
Digestive System	0·18
Total	3·01

Losses in 1916.

Whooping Cough	0·05
Influenza	0·03
Cancer	0·12
Old Age	0·06
Urinary System	0·01
Total	0·27
Balance of Gain from Above Causes	2·74
Do, All Causes	3·15

The table which enables us to examine the death-rates in the different Sanitary Divisions and districts, broken up into their constituent parts, according as the deaths occurred at home, in workhouse hospitals, or in other institutions, is given only for the three principal divisions of the City. It appears to show an increasing tendency to have recourse to public institutions.

TABLE I.—1916.—DEATH-RATES* IN THE HOMES OF THE PEOPLE, IN WORKHOUSES, AND IN HOSPITALS FOR THE VARIOUS DIVISIONS OF THE CITY.

Statistical Divisions	Estimated Populations to middle of 1916	Death-rate per 1000 of persons dying in their own homes	Death-rate per 1000 of persons dying in Workhouses	Death-rate per 1000 of persons dying in Hospitals	Total death-rate per 1000	Mean death-rate 1906–1915
City of Manchester. ...	**754,531**	**9·74**	**2·62**	**2·22**	**14·58**	**17·07**
I. Manchester Township..	106,550	12·64	6·72	3·52	22·88	24·79
II. North Manchester	216,816	8·94	1·27	1·90	12·11	14·34
III. South Manchester	431,165	9·43	2·29	2·05	13·77	16·11

* In this table, *every death* occurring in a Public Institution has been referred to the District from which the patient originally came.

Table 2 shows that the male and female death-rates stand to each other in much the same relation as in previous years, with a tendency for the female death-rate to increase relatively to that amongst males.

TABLE 2.

Annual Death-rates—Male and Female.

	Male	Female
1905	19·45	16·31
1906	20·65	17·47
1907	19·52	16·40
1908	19·87	16·47
1909	18·88	16·62
1910	17·37	14·51
1911	18·73	15·64
1912	17·68	14·79
1913	17·31	14·35
1914	18·36	15·28
1915	17·62	15·09
1916	15·53	13·68

Table 3 shows steady tendency downwards in recent years, a matter for congratulation.

TABLE 3.—INFANTILE MORTALITY.

Deaths per 1000 *births at the ages* 0–2 *months,* 3–5 *months, and* 6–11 *months, in successive years.*

YEARS	Months of Age			
	0–2	3–5	6–11	Under 1 year
1891–95 (mean)	82·79	40·99	62·97	186·75
1896	78·71	38·11	59·31	176·13
1897	82·31	42·43	69·89	194·63
1898	86·64	42·72	66·51	195·87
1899	88·14	46·49	70·79	205·42
1900	81·42	42·42	64·91	188·75
1901	88·90	42·96	66·60	198·46
1902	73·49	32·23	45·73	151·45
1903	79·91	36·37	52·25	168·53
1904	84·37	42·01	60·34	186·72
1905	78·42	34·05	46·28	158·75
1906	78·65	35·77	54·68	169·10
1907	73·91	30·46	43·07	147·44
1908	76·20	30·09	46·16	152·45
1909	73·20	25·37	36·98	135·55
1910	67·50	23·90	40·44	131·84
1911	79·50	31·81	44·80	156·11
1912	65·31	19·70	37·26	122·30
1913	68·76	24·42	35·52	128·70
1914	68·19	23·16	37·28	128·63
1915	64·38	22·83	41·43	128·64
1916	61·55	18·50	31·22	111·24

It has been usual to show the number and distribution of deaths occurring in institutions. But this table is not given for the present year. The number of these deaths was greater than in 1915.

Tables D and J in the Appendix give materials for a consideration of the course of infant mortality, in regard to which there is at present an intense interest which is not likely to diminish.

If we compare the figures in Table D with those for the year 1915, we find a great reduction in mortality throughout the first year of life, most conspicuous in the last six months, but well marked also in the first two three-monthly periods.

There is also a well marked reduction in the mortality experienced in the second and third years of life, compared with that sustained in 1914 and 1915 at the same ages.

In the first three months the improvement appears chiefly under Diarrhœal Diseases, Premature Birth, and the heading Atrophy and Marasmus.

In the second three months the most marked improvement is under the heads of Diarrhœal Diseases and Atrophy and Marasmus. In the second half of the first year the improvement under Diarrhœa is very marked, as also under Lung Diseases and Atrophy.

In the second year of life marked improvement appears under Measles, Diarrhœa, and Lung Diseases, but there is falling off under Tuberculous Diseases and Whooping Cough.

The third year of life shows only a slight improvement in the mortality for 1916, and this is more than accounted for under the head of Measles. The same remark applies to the fourth and fifth years.

From Whooping Cough in these years of life the mortality is considerably higher in 1916 than in 1915.

Under Diarrhœa and Diphtheria the number of deaths under five years of age is decidedly smaller in 1916 than in 1915.

Under Tuberculous Diseases there is an increase.

Under other diseases no marked change is noted.

The improvement in the death-rate in the earlier years of life is thus practically confined to the first two years of life.

Table J permits a comparison in the infantile mortalities of the three main divisions of the City, and in each division the infantile mortality is unusually low for Manchester.

As compared with 1915, the greatest drop is shown in the mortality of the Manchester Township. The reduction of mortality is about the same in North and South Manchester.

As the two last dominate the mortality, it may be said that the reduction is of about the same amount throughout the City. Much of it is evidently seasonal, since the same drop in infantile mortality is of general occurrence throughout the country. It is, however, not entirely to be ascribed to a favourable season, and part of it must be ascribed to the increased attention given to infant welfare.

When we leave infant mortality we come into a region of uncertainty. The figures given are based on the hypothesis that the estimated increase of population continues to hold a hypothesis which cannot be accepted, although, for Manchester, it is believed that the population as a whole is thus more truly represented than by the Registrar-General's estimate based on the Civil Register. But, even if this be so, there is a great alteration in the age constitution of the civil population, though it would be difficult to say whether this makes more for increase or for decrease in the death-rate.

With this understanding we may glance at the figures for the total death-rates from different causes in the whole City and its main divisions. The figures for the diseases of childhood and advanced years will, of course, be less erroneous than those which are specially prevalent in the middle periods of life.

A marked feature of the year is the low death-rate from Measles, which appears to exact the heaviest death-rate in South Manchester.

The administrative action taken under the Regulations of the Local Government Board has undoubtedly had a share in effecting this result.

Scarlet Fever and Enteric Fever both show a reduced death-rate, as does also Erysipelas.

From Influenza the apparent death-rate is the same as in 1915, and may, therefore, be somewhat higher.

From Diarrhœal Diseases the death-rate is low.

It is also lower from Diphtheria in 1916 than in 1915, and partly this may be due to skilful treatment.

Puerperal Fever shows no reduction.

From Alcoholism there is no doubt a reduced death-rate.

When we come to the larger causes of death we do not find the same uniformity of improvement.

It is probable that the death-rate from Phthisis is lower, but from other forms of Tuberculosis the death-rate has increased. This may be associated with the undoubted increase of tuberculous infection in milk.

From Cancer there is, again, an increased death-rate.

Bronchitis yields a mortality not differing materially from that in 1915. From Pneumonia the death-rate is reduced, but this may be due to absence of men at those ages when Pneumonia exacts a heavy death-rate.

There is a marked reduction under Diseases of the Nervous System, a fact which may be placed in apposition with the reduced death-rate under Alcoholism. Under Old Age, again, there is a somewhat reduced death-rate, and probably also under Diseases of the Digestive System.

The table showing the comparative birth-rates and mortalities in the various Sanitary Divisions of the City is not reproduced.

But we may safely state that the highest birth-rates occurred in St. George's, Ancoats, Bradford, Beswick, West Gorton, Openshaw, Ardwick, and Clayton, a continuous industrial area, and in the isolated district of Hulme.

The highest death-rates were experienced in the three Sanitary Districts of the Manchester Township, and after these in Hulme and Chorlton-upon-Medlock in South Manchester.

The percentage of illegitimate births for the whole City was 4·3, not a material increase on normal times. But the infantile mortality amongst illegitimate infants was considerably more than double that amongst the legitimate.

The rate of illegitimacy was highest in the Central District of the Manchester Township, and after that in Moss Side.

Uncertified deaths formed 1·1 per cent. of the total. But 7·8 per cent. were certified by the Coroner, and in the Manchester Township no less than 9·2 per cent. were so certified.

The causes of death are set forth in the usual table in the Appendix, omitting however the tables classifying the deaths in males and females. But it is not proposed at present to discuss the above table, as the figures add nothing to the general review, from a sanitary point of view.

Notwithstanding the great increase of work thrown upon women, the death-rate in males still exceeds that amongst females by 13·5 per cent. In 1913, however, the excess was 20·6 per cent.

Table P summarises the work of the Sanitary Department for the year.

INFECTIOUS DISEASES.

The diseases included in the Infectious Disease (Notification) Acts, 1889 and 1899, are as follows: Smallpox, Scarlet Fever, Diphtheria, Membranous Croup, Typhus Fever, Enteric or Typhoid Fever, Relapsing Fever, Continued Fever, Puerperal Fever, Erysipelas, and Asiatic Cholera, to which have been added Ophthalmia Neonatorum, Cerebro-Spinal Fever and Poliomyelitis. The following cases were notified in 1916, and the numbers are compared with the average of the previous ten years:—

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	Aver'ge for 10 Years	1916
Smallpox	5	5	...	...	...	..	1	1	...	...	1	...
Scarlet Fever ...	3,075	2,732	2,893	3,700	2,324	1,939	1,840	3,715	4,712	2,922	2,985	1,18
Diphtheria..... Memb. Croup	551	499	546	598	498	472	474	650	746	548	558	61
Typhus Fever ...	...	1	...	20	2	10	...	...	1	...	3	...
Enteric Fever ...	384	265	393	369	358	256	242	292	156	174	289	7
Relapsing Fever	1	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever	106	95	101	84	131	130	124	124	104	94	109	9
Erysipelas	383	337	364	371	407	442	396	412	551	492	416	32
Ophthalmia Neonatorum	...	...	...	...	246	443	503	331	414	414	392	379
Cerebro-Spinal Fever	...	...	...	...	...	...	6	1	2	15	6	8
Poliomyelitis ...	...	...	...	...	...	...	55	6	12	8	20	9
	4,505	3,934	4,297	5,142	3,966	3,692	3,641	5,532	6,698	4,667	4,779	2,692

It will be seen that the incidence of Infectious Disease is unprecedentedly low. Very notable are the figures for Enteric Fever and Scarlet Fever.

The deaths from the more common diseases are shown in the following figures:—

Years	Measles	Scarlet Fever	Diphtheria	Enteric Fever	Smallpox	Whooping Cough	Diarrhœa	Phthisis
1906–15 average	358	97	107	57	...	218	554	1131
1916	179	35	67	23	...	300	313	1238

SMALLPOX.

No cases of Smallpox were notified during the year 1916.

SCARLET FEVER.

The following table shows the course of the disease:—

TABLE I.—SCARLET FEVER, 1916.—ATTACKS IN WEEKS ACCORDING TO DATE OF RASH.

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER		FOURTH QUARTER	
Jan. 8	29	April 8	30	July 8	22	Oct. 7	17
,, 15	28	,, 15	32	,, 15	21	,, 14	30
,, 22	34	,, 22	25	,, 22	29	,, 21	20
,, 29	33	,, 29	26	,, 29	27	,, 28	22
Feb. 5	24	May 6	25	Aug. 5	20	Nov. 4	18
,, 12	21	,, 13	31	,, 12	18	,, 11	23
,, 19	32	,, 20	29	,, 19	19	,, 18	13
,, 26	27	,, 27	22	,, 26	16	,, 25	16
March 4	27	June 3	25	Sept. 2	31	Dec. 2	15
,, 11	27	,, 10	22	,, 9	29	,, 9	15
,, 18	26	,, 17	26	,, 16	14	,, 16	15
,, 25	19	,, 24	14	,, 23	19	,, 23	16
April 1	26	July 1	16	,, 30	12	,, 30	12
Total...	353	Total...	323	Total...	277	Total...	232

City Total, 1,185.

This table shows a striking uniformity of incidence throughout the year, a feature of the lowest and highest points of the Scarlet Fever periodic wave formerly commented upon.

During 1916 the rate of attack from Scarlet Fever was lower than in the towns used for comparison, and was highest in North Manchester.

TABLE 2.—SCARLET FEVER ATTACKS, 1916.—RATES PER 1,000 LIVING, AS COMPARED WITH THE MEAN FOR FIVE YEARS.

	1911	1912	1913	1914	1915	Mean	1916
Twelve Towns *	3·43	2·75	3·47	4·86	3·49	**3·60**	1·81
City of Manchester ...	2·91	2·74	5·40	6·89	3·91	**4·37**	1·57
Manchester Township	1·72	2·74	4·30	5·05	3·09	**3·38**	1·90
North Manchester	2·90	3·38	8·64	7·46	4·47	**5·37**	2·01
South Manchester	3·31	2·38	3·89	7·13	3·84	**4·11**	1·27

* These are Blackburn, Bolton, Bradford, Burnley, Halifax, Hull, Leeds, Liverpool, Oldham, Preston, Salford, and Sheffield.

TABLE 3.—1916—SCARLET FEVER ATTACKS IN DISTRICTS, WITH ATTACK RATE, CASE FATALITY PER CENT., AND REMOVALS TO HOSPITAL PER CENT.

	DISTRICTS	ATTACKS	ATTACK RATE PER 1,000 LIVING	† CASE FATALITY PER CENT.	REMOVALS TO HOSPITAL PER CENT.
Manchester Township	Ancoats	105	2·70	8·6	90·5
	Central	17	0·89	...	94·1
	St. George's	80	1·65	6·3	76·3
	Cheetham	101	2·23	2·0	78·3
North Manchester	Crumpsall	17	1·56	...	47·1
	Blackley	52	3·27	7·7	76·9
	Harpurhey	22	1·23	4·5	81·8
	Moston	39	1·34	...	74·3
	Newton Heath ...	88	2·00	2·3	81·9
	Bradford	63	2·43	1·6	93·6
	Beswick	16	1·30	6·3	100·0
	Clayton	38	2·46	2·6	68·4
South Manchester	Ardwick	70	1·78	2·9	88·6
	Openshaw	42	1·28	4·8	73·8
	Gorton (West) ...	27	1·01	...	70·4
	Rusholme & Kirk.	50	1·07	...	52·0
	Chorlton-on-Med.	55	1·03	...	74·5
	Hulme	74	1·19	2·7	82·4
	Moss Side	39	1·05	2·6	64·1
	Withington.....	76	1·29	...	57·9
	Gorton	89	1·81	3·4	69·7
	Levenshulme	25	1·02	...	28·0
City of Manchester ...		**1,185**	**1·57**	**3·0**	**75·7**

† Corrected; the fatal cases are those actually occurring amongst the cases notified.

Notwithstanding the low total incidence of Scarlet Fever, it has not been found necessary to remove to Hospital more than 75·7 per cent. of the cases, which may be taken to imply that a fairly high proportion of the cases occurred under conditions permitting of satisfactory isolation at home.

The case fatality is slightly lower than the mean for the past ten years.

TABLE 3A.

Year.....	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	Mean	1916
Case fatality per cent.	3·6	3·6	3·6	4·1	3·4	1·8	2·8	2·5	3·1	2·7	3·1	3·0

The comparative severity of attacks in infancy is again shown in the following table:—

TABLE 4.

SCARLET FEVER.—NUMBER OF ATTACKS, AND OF DEATHS; ALSO THE CASE FATALITY PER CENT. AT DIFFERENT AGES, FOR THE TWENTY-FIVE YEARS 1891–1915, AND FOR 1916.

AGES	1891-1915			1916		
	ATTACKS	DEATHS	CASE FATALITY PER CENT.	ATTACKS	DEATHS	CASE FATALITY PER CENT.
Under one year ...	618	106	17·1	12	1	8·5
1 to 2 years ...	1,865	275	14·7	46	7	15·2
2 to 3 ,, ...	3,812	430	11·3	70	7	10·0
3 to 4 ,, ...	5,289	474	9·0	95	2	2·1
4 to 5 ,, ...	6,073	411	6·8	130	6	4·6
5 to 6 ,, ...	6,479	257	4·0	121	4	3·3
6 to 7 ,, ...	5,914	169	2·9	113	5	4·4
7 to 8 ,, ...	5,186	116	2·2	94	1	1·1
8 to 9 ,, ...	4,167	74	1·8	87	....	...
9 to 10 ,, ...	3,473	63	1·8	64	...	...
10 to 15 ,, ...	9,973	144	1·4	189	1	0·5
15 to 20 ,, ...	3,136	60	1·9	58	1	1·7
20 to 25 ,, ...	1,494	27	1·8	38	1	2·6
25 to 35 ,, ...	1,348	39	2·9	44	...	...
35 to 45 ,, ...	368	13	3·5	19	...	...
45 and over ...	103	3	2·9	5	...	...
All Ages	59,298	2661	4·5	1,185	36	3·0

Table 5 gives a comparison of the death-rates from Scarlet Fever in different localities, and shows that the death-rate was still slightly above that of the country generally.

Notwithstanding this, it was remarkably low. But it closely approximates to that of the entire country.

TABLE 5.—SCARLET FEVER MORTALITY, 1916.—RATE PER 1,000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	1911	1912	1913	1914	1915	Mean	1916
England and Wales.....	0·05	0·05	0·06	0·08	0·06	**0·06**	0·04
96 Great Towns	0·06	0·06	0·07	0·09	0·07	**0·07**	0·04
London.....	0·04	0·04	0·04	0·07	0·07	**0·05**	0·03
Manchester City.....	0·06	0·07	0·13	0·22	0·11	**0·12**	0·05
Manchester Township	0·08	0·13	0·16	0·17	0·07	**0·12**	0·13
North Manchester	0·08	0·09	0·19	0·22	0·17	**0·15**	0·05
South Manchester	0·05	0·04	0·09	0·23	0·09	**0·10**	0·02
146 Smaller Towns	0·06	0·05	0·05	0·07	0·07	**0·06**	0·04
Rural Districts	0·04	0·04	0·05	0·06	0·05	**0·05**	0·03

The percentage of cases removed to hospital in each year since 1895 has been as follows :—

TABLE 6.—SCARLET FEVER.

		1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905
Manchester Township.	Removal to Hospital, per cent..	82·0	83·5	89·2	85·8	87·2	88·0	88·5	88·8	91·9	88·6	82·3
	Death-rate per 1,000	0·37	0·41	0·27	0·11	0·08	0·16	0·24	0·21	0·14	0·17	0·15
Entire City.	Removal to Hospital, per cent..	71·3	73·9	79·7	73·1	74·4	80·9	82·3	81·2	83·4	79·8	72·9
	Death-rate per 1,000	0·33	0·37	0·23	0·12	0·08	0·19	0·23	0·27	0·17	0·15	0·13

		1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
Manchester Township.	Removal to Hospital, per cent..	75·1	74·5	72·7	66·1	79·6	88·0	89·2	71·1	57·4	86·9	69·3
	Death-rate per 1,000	0·27	0·20	0·18	0·25	0·15	0·08	0·13	0·16	0·17	0·07	0·13
Entire City.	Removal to Hospital, per cent..	66·3	65·0	68·8	58·1	74·5	76·0	77·5	57·7	47·9	80·0	75·7
	Death-rate per 1,000	0·19	0·18	0·16	0·27	0·10	0·06	0·07	0·13	0·22	0·11	0·05

DIPHTHERIA AND MEMBRANOUS CROUP.

The usual tables for this disease are again given.

The following table shows the number of cases notified each year for the last ten years :—

1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
499	546	598	498	472	474	650	746	548	614

Table I.

Diphtheria, Memb. Croup, 1916.—Attacks in Weeks, according to date of onset.

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Jan. 8	23	April 8	11	July 8	11	Oct. 7	7
,, 15	21	,, 15	16	,, 15	13	,, 14	11
,, 22	16	,, 22	6	,, 22	8	,, 21	17
,, 29	13	,, 29	15	,, 29	14	,, 28	12
Feb. 5	17	May 6	9	Aug. 5	7	Nov. 4	19
,, 12	13	,, 13	15	,, 12	1	,, 11	20
,, 19	7	,, 20	7	,, 19	12	,, 18	17
,, 26	8	,, 27	12	,, 26	5	,, 25	16
March 4	12	June 3	7	Sept. 2	9	Dec. 2	11
,, 11	21	,, 10	13	,, 9	6	,, 9	4
,, 18	16	,, 17	9	,, 16	14	,, 16	14
,, 25	13	,, 24	8	,, 23	8	,, 23	11
April 1	13	July 1	3	,, 30	9	,, 30	14
Total...	193	Total...	131	Total...	117	Total...	173

City total, 614.

Table II.

Shows the Attack Rate per 1,000 living for the year 1916, compared with the mean of five years—Diphtheria and Membranous Croup.

	1911	1912	1913	1914	1915	Mean	1916
*Twelve Notification Towns ...	1·50	1·17	1·43	1·47	1·39	**1·39**	1·13
City of Manchester	0·71	0·71	0·94	1·09	0·73	**0·84**	0·81
Manchester Township.....	0·60	0·51	0·73	0·83	0·85	**0·70**	0·95
North Manchester	0·57	0·66	1·06	1·46	1·00	**0·95**	0·97
South Manchester	0·82	0·79	0·94	0·96	0·58	**0·82**	0·70

* These are in Lancashire and Yorkshire.

The following table shows that the attack rate is highest at ages 3 to 5:—

Table III.

Diphtheria, Memb. Croup, 1916.—Number of Attacks, of Deaths, and Case Fatality at Different Ages, for the Twenty-five Years 1891-1915, and for 1916.

Ages	1891-1915			1916		
	Attacks	Deaths	Case Fatality*	Attacks	Deaths	Case Fatality*
Under one year ...	312	207	66·3	14	4	28·6
1 to 2 years ...	922	486	52·7	48	15	31·2
2 to 3 ,, ...	1099	424	38·6	51	9	17·6
3 to 4 ,, ...	1328	416	31·3	58	6	10·3
4 to 5 ,, ...	1339	353	26·4	71	14	19·7
5 to 6 ,, ...	1201	277	23·1	63	12	19·0
6 to 7 ,, ...	875	155	17·7	51	2	3·9
7 to 8 ,, ...	666	101	15·2	31	2	6·4
8 to 9 ,, ...	550	80	14·5	32	2	6·2
9 to 10 ,, ...	403	50	12·4	20	1	5·0
10 to 15 ,, ...	1104	68	6·2	75	4	5·3
15 to 20 ,, ...	551	29	5·3	35	...	...
20 to 25 ,, ...	449	13	2·9	17	1	5·9
25 to 35 ,, ...	597	19	3·2	30	...	...
35 to 45 ,, ...	241	5	2·1	9	...	...
45 and over ...	107	9	8·4	1	...	...
All ages	11744	2692	22·9	614	72	11·7

* The percentages in this column are the actual proportions of fatal cases to the attacks at those ages.

The case fatality at all ages since 1901 has been as follows:—

1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
28·8	29·4	21·9	20·7	22·4	21·1	20·4	21·8	17·9	19·9	16·5	20 0	14·9	14·3	18·8	11·7

From the following table we see that the apparent incidence of the disease was greatest in the districts of Blackley, Openshaw, Clayton, and West Gorton. The percentage of removals is 69·5, a high figure, and one which is satisfactory. The disease is one which yields good results to isolation, and care in removing infection.

Table IV.

Diphtheria and Membranous Croup, 1916.—Attacks in Districts, with Attack Rate, Case Fatality per cent., and Removals to Hospital per cent.

Districts		Attacks	Deaths	Attack Rate per 1000 living	† Case Fatality per cent.	Removals to Hospital per cent.
Manchester Township	Ancoats	30	7	0·77	23·4	86·7
	Central	18	4	0·94	22·2	88·9
	St. George's	53	4	1·09	7·6	64·1
North Manchester	Cheetham	42	3	0·93	7·1	66·6
	Crumpsall	6	...	0·55	...	16·7
	Blackley	30	3	1·89	10·0	83·3
	Harpurhey	18	1	1·01	5·6	77·7
	Moston	20	3	0·69	15·0	65·0
	Newton Heath	47	6	1·07	12·8	68·1
	Bradford	20	5	0·77	25·0	85·0
	Beswick	7	...	0·57	...	100·0
	Clayton	20	3	1·30	15·0	75·0
South Manchester	Ardwick	25	5	0·64	20·0	88·0
	Openshaw	49	4	1·49	8·2	49·0
	Gorton (West)	33	3	1·23	9·0	81·1
	Rusholme & Kirk.	22	1	0·47	4·6	68·3
	Chorlton-on-Med	29	4	0·54	13·8	79·3
	Hulme	39	4	0·63	10·3	82·1
	Moss Side	3	...	0·08	...	33·3
	Withington	37	3	0·63	8·1	37·8
	Gorton	49	8	1·00	16·3	65·3
	Levenshulme	17	1	0·70	5·9	52·9
City of Manchester		614	72	0·81	11·7	69·5

† Corrected: the fatal cases are those actually occurring amongst the cases notified.

The figures given below show that in 1916 Manchester had a lower death-rate from Diphtheria than prevailed over England generally.

Table V.

Diphtheria, Memb. Croup Mortality, 1916.—Rate per 1000 living compared with mean of five years.

	1911	1912	1913	1914	1915	Mean	1916
England and Wales	0·13	0·11	0·12	0·15	0·15	**0·13**	0·14
96 Great Towns	0·15	0·13	0·13	0·16	0·16	**0·15**	0·15
London	0·14	0·10	0·09	0·16	0·16	**0·13**	0·14
Manchester City	0·12	0·13	0·14	0·15	0·14	**0·14**	0·09
Manchester Township	0·15	0·17	0·15	0·20	0·25	**0·18**	0·13
North Manchester	0·07	0·12	0·18	0·22	0·20	**0·16**	0·10
South Manchester	0·14	0·13	0·12	0·10	0·09	**0·12**	0·07
146 Smaller Towns	0·12	0·11	0·11	0·16	0·15	**0·13**	0·15
Rural Districts	0·11	0·10	0·11	0·14	0·14	**0·12**	0·14

The attack-rate, however, was lower than that for the twelve notification towns selected for comparison.

DIPHTHERIA CONTACTS.

By Dr. St. C. McClure.

1,506 throat swabs were taken from family contacts where the swabs from the primary cases showed Diphtheria Bacilli. 1,444 gave negative results, and 62, or 4·3 per cent., positive. Of the 62 positive cases, 17 showed symptoms of illness, and were either secondary or primary overlooked cases. The remaining 45 had no symptoms and were regarded as healthy "carriers." Of the latter, 33 were removed and kept under observation at Monsall Hospital, and 12 were isolated at home until nasal and throat swabs showed negative results. The ages of contacts examined and the result are shown in Table I.

Table I.

Age Groups	Number Swabbed	Positive Result		Percentage of "Healthy Carriers."
		With Symptoms	Without Symptoms	
0—5	179	2	11	6·14
5—10	247	3	16	6·45
10—15	299	3	9	3·01
15—25	173	4	1	0·57
25—35	232	4	2	0·86
35 and over	376	1	6	1·60
Total ..	1,506	17	45	3·98

Milk Borne Outbreak of Diphtheria.

In the sub-districts of Withington, Didsbury, and West Didsbury the number of cases of Diphtheria which occurred from November, 1915, to March, 1916, was as follows :—

November, 1 case ; December, 6 ; January, 8 ; February, 6 ; March, 1 – 22 cases in all.

Five patients at the end of December and 6 patients in January were supplied with milk from the same farm. The remaining 11 cases had, so far as could be ascertained, no connection therewith and are not further considered here.

The ages of those infected were—6, 12, 13, 14, 17, 18, 18, 18, 19, 27, and 45 years respectively. Two, aged 13 and 14, were males. One child, aged 6 years, succumbed to the infection.

The dates of onset and of notification are here given :—

	Date of Onset	Date of Notification
1st case	Dec. 16	Dec. 20
2nd ,, ...	,, 28	Jan. 1
3rd ,, ...	,, 29	,, 1
4th ,, ...	,, 31	,, 1
5th ,, ...	,, 31	,, 5
6th ,, ...	Jan. 5	,, 8
7th ,, ...	,, 8	,, 14
8th ,, ...	,, 11	,, 13
9th ,, ...	,, 10	,, 15
10th ,, ...	,, 22	,, 29
11th ,, ...	,, 26	,, 29

It will be noted that in a number of cases there was considerable delay in receiving the notification.

Enquiries showed that there was no other common source of infection, and there can be no doubt that 10 of the cases were infected by the milk.

The milk supply in question is distributed daily to about 2,000 people. The contamination, therefore, must have been slight. A small quantity of the milk was derived from another farm outside the City. This farm was visited by Dr. McClure. No apparent cause of infection was found, and swabs from the farmer, his family, and employees gave negative results. Moreover, this portion of the milk was for a time kept and delivered separately to customers, and no cases of illness arose in connection with it.

The same person did not deliver milk to all the households which were attacked. The milk was therefore infected at the farm.

Repeated examinations of the Cows' udders and teats showed no excoriations.

Swabs taken on January 5th from the farmer, his family, and employees, 14 persons in all, gave negative results. Swabs taken from their noses and throats on January 14th showed that one of the boys employed on a milk round and in washing the cans was a healthy carrier of Diphtheria Bacilli, and he was removed to Monsall Hospital for observation. Further swabs from throats and noses on January 22nd gave negative results.

The steps taken to stop the spread of infection involved stopping the milk supply altogether from January 14th to January 23rd. Certain defects at the farm were remedied and means for sterilizing all milk cans improved, and what promised to become an extensive outbreak came to an end after the 11th case.

Contacts in Infected Households.

72 family contacts remained well, and swabs from the throats of 61 of them gave negative results. The ages of these contacts were as follows :—Under 10 years, 14 ; 10 to 20 years, 12 ; 20 years and over, 46.

Source of Contamination of the Milk.

There were three possible sources of contamination of the milk with Diphtheria Bacilli :—

(*a*) The daughter of the milk dealer herself contracted Diphtheria. She was by no means the first case, and after investigation it seemed probable that she was herself infected by the milk.

(*b*) A boy employed on a milk round and in cleaning cans was found to be a "Diphtheria carrier."

(*c*) The first case of Diphtheria connected with this milk supply preceded the second case by 12 days. Evidence showed that this was probably an independent case. There was, however, a custom, which has now ceased, of leaving cans or bottles of milk at a customer's house on one day and taking it back to the dairy on the next. In consequence, cans were, at times, left in infected houses, and in this instance they were left in the house of the first case of Diphtheria every day for two weeks, although the patient was being nursed at home. There was no evidence to show that the milk cans so left were infected, but the custom of leaving cans and bottles at customers' houses over night is undesirable and is fraught with risk.

ENTERIC FEVER.

By Dr. W. St. C. McClure.

The number of cases of Enteric Fever occurring during 1916 was 78, which shows a great reduction on the number notified in any previous year. In addition, nine military cases infected outside Manchester came to our knowledge.

Table I. shows the attack and death-rates compared with those of England and Wales.

Table I.

Incidence of and Death-rate from Enteric Fever in Manchester.

Number of notified cases, deaths, and death-rates per 1,000 *living from Enteric Fever in each of seventeen successive years.*

Year	1900	1901	1902	1903	1904	1905	1906	1907	1908
No. of cases notified	378	359	378	387	325	345	384	265	393
No. of deaths.	75	75	66	93	66	55	83	37	75
Death-rate — Manchester	0·14	0·14	0·12	0·17	0·12	0·09	0·14	0·06	0·11
Death-rate — England and Wales...	0·17	0·16	0·13	0·10	0·09	0·09	0·09	0·07	0·07

Year	1909	1910	1911	1912	1913	1914	1915	1916	
No. of cases notified and accepted . .	369	358	256	242	292	156	174	78	...
No. of deaths	71	62	46	43	47	34	46	22	...
Death-rate — Manchester	0·13	0·09	0·07	0·06	0·06	0·05	0·06	0·03	...
Death-rate — England and Wales..	0·06	0·05	0·07	0·04	0·04	0·05	0·04	0·03	...

Other tables which it has been customary to print have been compiled and recorded in the Office.

Distribution.

12 cases occurred in Ancoats, 8 each in Central and Newton districts; the remainder were fairly distributed over 18 other districts. No cases were notified from Blackley and Levenshulme.

Tabulation of the attacks according to the dates of onset shows that in the first quarter there were 26 cases; second quarter, 21; third quarter, 13; fourth quarter, 18. The usual autumnal rise was again absent.

Causes of Infection.

Four cases were infected outside the City. Direct infection from cases already notified or from overlooked cases which were discovered accounted for 11. Cases associated with the eating of mussels at a time prior to the illness compatible with infection being got therefrom, and in which no other cause could be traced, numbered 17, 9 males and 8 females. In this connection it may be noted that examination of contacts with patients suspected of being infected by mussels brought to light seven in six houses whose blood gave a positive Widal reaction. Two had not themselves eaten mussels but were infected by the primary cases ; of five who ate mussels at the same time as the notified case three showed no symptoms, whilst two were definite but mild cases of Typhoid. There remain 54, or 37 per cent. of the total, where no likely source of infection was discovered.

Examination of Contacts.

The following table shows the age and sex of 187 family contacts whose blood was examined for the Widal reaction, and the result :—

Males.

Years	0—5	5—15	15—25	25—35	35 and over	Total
Negative	12	24	11	1	14	62
Positive	2	2	1	1	2	8

Females.

Years	0—5	5—15	15—25	25—35	35 and over	Total
Negative	16	30	23	11	26	106
Positive	..	2	4	1	4	11

Thus 19 out of 187 gave a positive Widal reaction.

Of the 19 positive cases 10 were suffering from Typhoid, and in 9 there were no symptoms of illness nor could any history of illness be obtained.

Two of those suffering from Typhoid were infected by previous cases in the households; the remainder had been unrecognised for some time and gave rise to other cases.

BACTERIOLOGICAL EXAMINATIONS MADE FOR THE COUNTY BOROUGH OF MANCHESTER DURING THE YEAR 1916,
PUBLIC HEALTH LABORATORY, UNIVERSITY OF MANCHESTER.

Month	Diphtheria			Typhoid			Tuberculosis						Other Investigations*
							Sputum			Milk			
	+	—	Total	+	—	Total	+	—	Total	+	—	Total	
January ..	59	405	464	12	38	50	73	141	214	3	8	11	
February ..	32	216	248	5	18	23	70	110	183	4	29	33	
March	36	196	232	8	27	35	58	119	177	7	47	54	
April	51	262	313	16	49	65	81	145	226	7	58	65	
May	30	247	277	7	42	49	50	129	179	8	53	61	
June	27	227	254	8	22	30	57	126	183	2	7	9	
July	32	189	221	6	68	74	64	166	230	4	36	40	
August	16	126	142	3	11	14	53	127	180	..	22	22	
September ..	24	210	234	5	30	35	55	174	229	1	39	40	
October ..	16	211	227	11	47	58	59	175	234	9	37	46	
November ..	37	242	279	6	29	35	42	143	185	6	49	55	
December ..	29	233	262	6	39	45	43	167	210	6	43	49	
Total ..	389	2764	3153	93	420	513	705	1725	2430	57	428	485	

* Other investigations 151, *re* cerebro spinal fluid, milk, shaving brushes, water, etc.

MEASLES AND GERMAN MEASLES.

It will be convenient to take these two diseases together, as they are liable to be confounded one with another, although in itself German Measles is a slight affection, with practically no mortality, while Measles, on the contrary, exacts a high mortality, especially among children under two years of age.

Hitherto Measles has been notifiable only when a child is attending a school from a household invaded by Measles, in which case it becomes the duty of the parent to notify the case to the head teacher of the school concerned, whether the actual case is or is not attending school.

These notifications are transmitted to the Education Offices, and by the Education Department are sent on to the Medical Officer of Health.

The cases are then visited by the Sanitary Inspectors attached to the Public Health Office, who make a report, and, as far as time and circumstances permit, see that isolation is carried out.

But delays have been frequent both in the transmission of notifications and in the visiting of cases, and it cannot be said that the system worked satisfactorily.

In December, 1915, the Local Government Board made Measles and German Measles notifiable diseases, and prescribed a fee of 2s. 6d. to be paid in respect of notifications of cases occurring in private practice, and of 1s. when the case was in public practice. Notification was, however, to be paid for only in first cases.

The duties laid upon the Medical Officer of Health under the Order are as follows :—

Article II, Section 2.

(2) Upon the receipt of a notification under these Regulations, or on becoming aware in any other way of a case or suspected case of Measles or German Measles in his district, the Medical Officer of Health, or an Officer of the Local Authority acting under the instruction of the Medical Officer of Health, shall make such inquiries and take such steps as are necessary or desirable for investigating the source of infection, for preventing the spread of infection, and for removing conditions favourable to infection,

and if a Medical Practitioner is not in attendance on the patient the Medical Officer of Health shall also take such steps as are necessary or desirable for ascertaining the nature of the case.

The Local Authority may provide or contract for the provision of medical assistance for the poorer inhabitants of the District when suffering from either of the diseases above mentioned :

Provided that nothing in this Article shall be deemed to authorise a Medical Officer of Health or other Officer to take any of the steps herein mentioned at any Institution other than one belonging to the Local Authority except with the consent of the Managers of that Institution.

The Medical Officer of Health is not given any compulsory powers under this Order, except that any obstruction is liable to be punished under the Public Health Act, 1875, by a heavy fine.

The Sanitary Committee considered that this work could best be carried out by the Health Visitors under Infant Welfare work, and indeed we have no other machinery fitted for the purposes of the Order.

Arrangements were at once made, and work was commenced on January 1st, 1916. Forms were prepared similar to those employed for Scarlet Fever, the chief points of difference being that great attention was directed to the sterilisation of food, as Measles is liable to be followed by Tuberculosis. Also a special section was devoted to instructions given for the proper isolation, comfort, and feeding of the child.

I regard the work done under this Order by the Health Visitors, who are, for the most part, fully trained nurses, as most valuable, and have no doubt that the results are excellent, notwithstanding that our accommodation for the reception of cases of Measles in hospital approaches vanishing point.

But the work was done largely at the expense of other Infant Welfare work, and was, therefore, not all gain.

Notification under this Order is not strictly comparable with notification to the head teachers of schools under the Local Act.

Theoretically the cases notified, being only first cases, should be fewer than the notifications to teachers. In fact, they are much more numerous.

The actual numbers notified were in the respective quarters of 1916 :—

Diseases Notified	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
Measles	1,517	3,986	1,425	2,302	9,230
German Measles ..	364	679	180	39	1,262

The deaths from Measles in successive years are shown in the following table :—

TABLE I.

DEATHS FROM MEASLES IN THE CITY OF MANCHESTER.

Years	Under One Year			Years of Age				Total 5 Years and upwards
	Under 3 Months	3-5 Months	6-11 Months	1-	2-	3-	4-	
1899–1908	16	57	742	1470	599	338	168	168
1909	2	6	78	164	58	37	16	35
1910	2	2	76	118	39	21	15	18
1911	1	7	73	152	47	30	16	11
1912	4	8	99	163	88	58	38	32
1913	5	3	62	98	37	20	19	15
1914	1	3	62	127	54	19	9	18
1915	1	5	98	215	64	29	20	15
1916	3	2	37	80	28	12	8	9

It would be unwise to claim the great reduction in mortality which is manifest in the above figures as due entirely to better administration, especially as this experience was not confined to Manchester.

But I make no doubt that it was partly due to the work of the Health Visitors.

The statement of deaths in quarters given in Table 2 qualifies the impression given.

TABLE 2.

YEAR	1st Quarter	2nd	3rd	4th	Whole Year
1902	67	68	60	47	242
1903	158	104	54	29	345
1904	100	189	83	53	425
1905	41	99	77	13	231
1906	60	266	118	32	475
1907	51	73	50	55	229
1908	116	78	71	101	366
1909	155	164	45	32	396
1910	32	118	71	70	291
1911	48	197	61	31	337
1912	214	211	28	37	490
1913	85	105	58	11	259
1914	37	132	50	74	293
1915	153	224	39	31	447
1916	27	84	31	37	179

In Table 3 is given a comparison of Manchester mortality with that occurring in other districts.

TABLE 3.—1916.—MEASLES MORTALITY.—RATE PER 1,000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	Mean 1911-15	1916
England and Wales	0·33	0·15
96 Great Towns	0·43	0·21
London	0·42	0·19
City of Manchester	0·50	0·24
Manchester Township	0·93	0·25
North Manchester	0·43	0·14
South Manchester	0·42	0·28
148 Smaller Towns	0·36	0·14
Rural Districts	0·21	...

The distribution of mortality in districts appears to show that the disease established two distinct Centres, viz., in Newton, Harpurhey and Moston, and in Rusholme, Chorlton-upon-Medlock, and Hulme.

TABLE 4.—1916.—DEATHS AND DEATH-RATES FROM MEASLES IN THE VARIOUS DIVISIONS OF THE CITY. ALSO NOTIFIED CASES OF MEASLES WITH ATTACK-RATES, AND GERMAN MEASLES.

Statistical Divisions		Estimated Population	Deaths	Death-rate	Average Death-rate 1906-1915	Attacks		Attacks Germa Measl
						Measles	Rate per 1000	
City of Manchester		**754,531**	**179**	**0·24**	**0·52**	**9230**	**12·23**	**1262**
I. Manchester Township ...		106,550	27	0·25	0·86	845	7·93	78
II. North Manchester.....		216,816	30	0·14	0·44	2538	11·71	247
III. South Manchester.....		431,165	122	0·28	0·46	5847	13·56	937
I.	Ancoats	38,961	8	0·21	0·97	293	7·52	33
	Central	19,059	4	0·21	0·59	146	7·66	21
	St. George's	48,530	15	0·31	0·88	406	8·37	24
II.	Cheetham	45,394	...	...	0·21	112	2·47	54
	Crumpsall	10,901	1	0·09	0·49	190	17·43	25
	Blackley.....	15,915	2	0·13	0·29	172	10·81	30
	Harpurhey	17,838	11	0·62	0·46	225	12·61	6
	Moston	29,054	4	0·14	0·27	490	16·87	25
	Newton Heath	44,089	4	0·09	0·51	812	18·42	76
	Bradford	25,936	3	0·12	0·77	281	10·83	24
	Beswick	12,262	4	0·33	0·81	109	8·89	2
	Clayton	15,427	1	0·06	0·34	147	9·53	5
III.	Ardwick	39,368	8	0·20	0·50	485	12·32	29
	Openshaw	32,856	8	0·24	0·67	382	11·63	25
	Gorton (West)	26,733	13	0·49	0·66	485	18·14	38
	Rusholme and Kirk.....	46,759	8	0·17	0·16	913	19·53	117
	Chorlton-upon-Medlock..	53,558	26	0·49	0·39	744	13·89	51
	Hulme	61,952	31	0·50	0·95	755	12·19	19
	Moss Side	37,255	3	0·08	0·14	485	13·02	79
	Withington	59,032	3	0·05	0·10	584	9·89	285
	Gorton	49,222	17	0·35	0·42	597	12·13	72
	Levenshulme.....	24,430	5	0·20	0·16	417	17·07	222

WHOOPING COUGH.

The highest death-rates are in Ancoats, West Gorton, and St. George's. The death-rate for 1916 was much above that of the country generally, of the great towns, and of London.

TABLE I.

1916.—WHOOPING COUGH MORTALITY.—RATE PER 1,000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	1911	1912	1913	1914	1915	Mean	1916
England and Wales	0·21	0·23	0·14	0·21	0·21	**0·20**	0·16
96 Great Towns.....	0·24	0·26	0·17	0·25	0·23	**0·23**	0·21
London	0·23	0·22	0·17	0·20	0·25	**0·21**	0·18
City of Manchester ...	0·20	0·41	0·19	0·38	0·09	**0·25**	0·40
Manchester Township ...	0·33	0·55	0·19	0·61	0·05	**0·35**	0·76
North Manchester.....	0·18	0·36	0·19	0·33	0·08	**0·23**	0·34
South Manchester	0·16	0·40	0·18	0·35	0·12	**0·24**	0·34
148 Smaller Towns	0·18	0·24	0·13	0·18	0·22	**0·19**	0·14
Rural Districts	0·19	0·17	0·12	0·17	0·19	**0·17**	0·12

DIARRHŒA.

TABLE 1.—1916.—DIARRHŒA AND SIMPLE CHOLERA MORTALITY — DEATHS UNDER TWO YEARS OF AGE PER 1,000 BIRTHS, COMPARED WITH MEAN OF FIVE YEARS.

This table of comparison shows that the Diarrhœa rate in 1916 was above that of the 96 great towns.

	1911	1912	1913	1914	1915	Mean	1916
England and Wales	43·65	8·53	23·41	20·41	18·18	**22·84**	12·47
96 Great Towns	51·30	10·91	29·33	26·09	24·48	**28·42**	16·24
London	47·55	12·42	27·50	27·64	25·01	**28·02**	15·80
City of Manchester.....	55·80	13·65	30·76	26·85	26·56	**30·72**	19·01
Manchester Township	88·10	25·89	55·43	52·84	46·13	**53·68**	42·58
North Manchester.....	49·55	10·97	27·22	18·81	20·74	**25·46**	13·81
South Manchester	47·16	10·70	24·08	21·77	23·00	**25·34**	14·04
148 Smaller Towns	48·70	8·01	24·73	19·84	17·15	**23·69**	10·79
Rural Districts	22·12	5·52	14·39	12·64	9·79	**12·89**	7·37

The number of deaths in successive years, and their distribution in quarters of the year, are exhibited in the following figures :—

TABLE 2.—DIARRHŒA AND SIMPLE CHOLERA DEATHS IN QUARTERS, 1906-1916.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	Mean	1916
First Quarter.....	32	14	29	19	30	44	49	60	67	49	**39**	55
Second Quarter...	37	18	29	35	29	50	40	46	53	57	**39**	48
Third Quarter.. ..	780	72	423	171	236	958	102	351	290	255	**364**	135
Fourth Quarter...	132	187	110	43	56	97	81	165	114	127	**111**	75
	981	291	591	268	351	1149	272	622	524	488	**553**	313

From Table 2 it will be seen that the seasonal prevalence of Diarrhœa extended into the fourth quarter.

The meteorological data given in the following table show that the third quarter was warm and humid, although the rainfall was low :—

TABLE 3.

Third Quarter of the years	Mean Temperature	Rainfall, Inches	Humidity, per cent.	Diarrhœa and Simple Cholera Mortality. Annual Rate (third quarter) per 1,000 living
1891	58°·2	12·8	79 %	1·57
1892	57° 0	12·5	78 %	2·07
1893	60°·4	10·7	74 %	4·95
1894	57°·8	9·0	78 %	1·55
1895	60°·4	11·2	77 %	4·17
1896	58°·5	9·7	76 %	2·93
1897	58°·9	9·7	73 %	6·01
1898	60°·1	6·1	74 %	6·00
1899	60°·8	7·7	75 %	6·96
1900	60°·3	9·6	78 %	4·14
1901	61°·9	6·5	74 %	6·33
1902	57°·6	5·9	78 %	0·88
1903	57°·8	12·3	77 %	2·19
1904	60°·2	6·9	73 %	4·48
1905	58°·9	9·4	76 %	3·89
1906	60°·8	6·2	75 %	4·91
1907	58°·5	7·8	77 %	0·45
1908	59°·2	10·7	78 %	2·61
1909	57°·8	10·4	79 %	1·04
1910	58°·1	9·1	79 %	1·32
1911	63°·0	6·7	69 %	5·48
1912	56°·9	12·3	79 %	0·56
1913	59°·4	4·9	80 %	1·89
1914	59°·8	9·2	77 %	1·57
1915	58°·6	9·5	77 %	1·37
Mean	**59°·2**	**9·1**	**76 %**	**3 17**
1916	60°·2	5·7	79%	0·71

The data in the above table are such as would have led us to expect a high diarrhœal mortality. This, however, was the next lowest on record. The table showing the distribution of diarrhœal mortality is not reproduced. It possesses the feature previously noted that the inequalities in fatality are well marked, as between district and district, and between one year and another.

OPHTHALMIA NEONATORUM.

By Dr. M. A. C. Douglas-Drummond.

During the year 1916, 742 cases of Inflammation of the Eyes were notified from various sources, and visited by the Eye Nurses.

Of these, 122 were cases of disease in children and adults: 8 suffered from purulent Conjunctivitis, 58 from simple Conjunctivitis, 12 had Blepharitis, 14 suffered from Keratitis with Ulceration of the Cornea, 10 suffered from Phlyctenular Conjunctivitis, while 1 case had Dacryoystitis. 19 cases of Ophthalmia were brought to the notice of the Public Health Authority, but, on visitation, were found to be normal.

620 cases of Inflammation of the Eyes of newly-born children occurred. Of these, 379 were notified by the medical attendants (either private or at the Royal Eye Hospital) as cases of Ophthalmia Neonatorum. The remaining 241 cases were notified by midwives, but the medical attendants considered them to be cases of Conjunctivitis only.

The following table shows the distribution of cases both as regards the districts in which they occurred and the month of the year. The cases in which the corneae were affected are shown on the first table also.

The largest number of cases of true Ophthalmia occurred in Hulme, Ardwick, Chorlton-upon-Medlock, and Bradford.

The monthly rate of notified cases varies considerably, and there seems no special reason for the rise and fall in numbers. April heads the list, followed by September, August, and May.

TABLE A, 1916.—SHOWING THE NUMBER OF CASES OF OPHTHALMIA NEONATORUM NOTIFIED MONTH BY MONTH IN DISTRICTS.

Month of the Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Cases not Notified	Cases with Corneal Complications
Ancoats	0	2	2	2	2	4	1	2	1	1	2	1	20	19	2
Central	1	1	2	5	..	..	2	2	1	..	3	..	17	5	3
St. George's	4	3	3	8	8	1	4	7	7	9	1	..	55	33	2
Cheetham	1	1	1	2	1	1	..	..	..	1	..	1	9	4	3
Crumpsall	1	1	..	..	1	1	..	1	1	2	3	..	11	1	..
Blackley	..	..	..	..	..	..	..	1	..	1	1	..	3	3	2
Harpurhey	..	1	..	1	..	..	..	..	..	..	..	..	2	3	..
Moston	..	..	..	1	2	..	..	..	..	..	..	..	3	7	1
Newton	..	1	1	1	1	1	..	2	..	3	2	..	12	9	1
Bradford	2	4	1	2	1	..	3	2	5	2	5	2	29	21	2
Beswick	3	..	2	5	5	2	2	1	2	..	..	1	23	10	1
Clayton	..	1	1	..	..	..	..	..	..	..	..	..	2	2	2
Ardwick	6	..	4	6	3	3	4	1	5	3	2	3	40	35	3
Openshaw	..	..	1	3	1	1	2	1	2	..	1	3	15	11	2
West Gorton	3	1	1	1	1	..	..	..	2	1	..	..	10	10	..
Rusholme	1	..	2	..	..	2	3	1	..	..	..	2	11	8	1
Chorlton-upon-Medlock	4	1	4	3	1	1	6	1	5	1	2	2	31	9	2
Hulme	3	4	2	8	4	9	1	6	8	1	1	2	49	38	7
Moss Side	..	..	..	..	..	2	1	1	2	..	..	..	6	1	..
Withington	..	1	..	..	..	..	..	1	..	1	..	..	3	1	1
Gorton	2	2	3	2	1	4	1	3	1	2	2	2	25	9	3
Levenshulme	..	..	1	1	1	..	..	..	..	..	..	..	3	2	..
CITY	31	24	31	51	33	32	30	33	42	28	25	19	379	241	38
Cases with Corneal Complications *	2	4	4	4	3	3	3	3	2	3	5	2	38	..	38

* Including 77 Cases notified as Ophthalmia Neonatorum; 70 of these were due to Simple Conjunctivitis, 5 to Lachrymal Obstruction, and 2 Ecchymoses.

The tables have been constructed as in last year's report, and explain themselves.

In 44 cases, other children had had Ophthalmia Neonatorum, and in one instance two children had been infected at birth, while in 40 instances more than one of the previous children had suffered from Ophthalmia.

In 31 cases where the infants were suffering from Conjunctivitis there was a history of eye trouble in other children at birth.

TABLE B—1916. OPHTHALMIA NEONATORUM.

	Age of Mother						Parity										Labour		Attendant not present at birth	No. of mothers having had previous cases of Ophth. Neon.	History of yellow discharge	Legitimacy		Definite history of delay in advising Medical assistance and Midwife attending case	
	—20	—25	—30	35 and Over	Not ascertained	Total	1	2	3	4	5	6	7	8	9+	Not Ascertained	Normal	Abnormal				Legit.	Illegit.	
Notified ..	14	110	112	141	2	379	80	81	55	35	26	32	28	8	34	—	343	36	70	44	151	364	15	0	
Not notified	13	54	71	101	2	241	50	47	30	23	26	22	11	12	18	2	226	15	48	31	96	233	8	1	

Total cases notified*... ... ... 379 = 620
Total not notified 241

* Includes 77 cases which were found on investigation not to be Oph. Neo.; 70 were cases of simple Conjunctivitis; 5 cases of Lach. Obst.; and 2 Ecchymoses.

Table C shows the day of onset, the attendant at birth, and the place of treatment.

The greatest number of onsets was on the first day of life, and in over one-half of the cases the first signs of disease appeared during the first four days.

Two-thirds of the cases were treated by private doctors, and the remaining one-third by the doctors of the Royal Eye Hospital.

In 38 instances there was involvement of the cornea, and 16 of these cases were admitted as in-patients to the Royal Eye Hospital.

Table C—1916. Ophthalmia Neonatorum.

	Interval in days between birth and onset											Attended by				Where treated				Total
	1	2	3	4	5	6	7	8	9	10+	Total	Midwife	Doctor	Midwife and Doctor	Total	Home	Out-Patients at Hospital	In-Patients at Hospital	No Doctor	
Notified	81	40	45	44	36	31	31	29	9	33	379	269	53	57	379	217	144	16	2	379
Not notified	48	33	32	20	14	27	14	29	4	20	241	207	4	30	241	192	26	0	23	241

Total notified cases	379
Total non-notified cases	241
	620

TABLE D.—CASES WITH INVOLVEMENT OF THE CORNEA.

Right Eye	12
Left Eye	13
Both Eyes	13
	38

Table E shows the results of the 379 cases of true Ophthalmia, and of the 241 c Conjunctivitis in newly-born infants :—

	Complete Recovery	One Eye Lost, Other Normal	One Eye Lost, the other Damaged	Both Eyes Lost	Both Eyes Damaged	One Eye Damaged	Death before recovery	TOTAL
Notified	360	2	..	1	..	..	16	379
Not notified	236	..	..	..	..	..	5	241
	596	2	..	1	..	..	21	620

The number of cases with corneal involvement was not large—38 in all—and the results are very satisfactory, as 33 have completely recovered. In 2 instances, with corneal complications, death occurred from causes other than Ophthalmia before the infants' eyes were better. In one of these 2 cases the right cornea had a deep ulcer, the infant was premature and very weakly, and, although medical aid was obtained at the onset, the vitality of the child was very low.

In the cases in which one eye is recorded as lost, the cases were sent at once to the Royal Eye Hospital and admitted. In the case where both eyes were lost the child was attending the Out-patients Department of the Royal Eye Hospital for five days prior to admission.

The total numbers of cases of Ophthalmia and Conjunctivitis in newly-born infants were : in 1911, 525 ; in 1912, 667 ; in 1913, 573 ; in 1914, 681 ; and in 1915, 642. The percentage of cases with corneal complications in 1911 was 7·23, as compared with 11·39 in 1912, 12·04 in 1913, 9·25 in 1914, 7·79 in 1915, and 6·13 in 1916.

The two nurses appointed in 1911 have continued the work in 1916 in a most efficient manner. The routine followed has not been altered, but it has been found that more children were treated at home than in previous years. 286 more visits were paid than in 1915.

CEREBRO-SPINAL FEVER AND OTHER FORMS OF MENINGITIS.

By Dr. W. St. C. McClure.

There were 29 suspected cases of Cerebro-spinal Fever investigated bacteriologically. Of these, 7 proved to be Cerebro-spinal Fever, 3 Tubercular Meningitis, 2 Streptococcal, and 3 Pneumococcal. In 13 cases no organisms were found, and the provisional diagnosis was :—Tubercular Meningitis, 8 ; Influenza, 3 ; Tetany, 1 ; Nil, 1.

The ages of the 7 cases of Cerebro-spinal Fever were :—under 1 year, 1 case ; 1 to 5 years, 1 ; 5 to 10 years, 2 ; 15 to 25 years, 1 ; 25 and over, 2. They were distributed through the year as follows :—February, 1 case ; May, 1 ; June, 1 ; August, 1 ; September, 2 ; October, 2. 7 cases ended fatally, giving a mortality rate of 85 per cent. The cases occurred in widely separated districts of the City, and no source of infection was traced in any of them. 33 Naso-pharyngeal swabs were taken from family contacts with negative results. In no instance did the disease spread amongst immediate contacts.

In addition to the cases investigated, and apart from Tubercular Meningitis, from which there were 133 deaths, there were 125 deaths certified as due to Meningitis. As has been pointed out in previous reports, unless bacteriological examination is made, the causative organism in Meningitis, apart from certain definitely Tubercular cases, can only be guessed at. From the opinions expressed by the Medical Attendants, these 125 deaths from Meningitis may be classified as follows :—Cause unknown, 55. *Possibly*—Tubercular, 5 ; Septic, 22 ; Syphilis, 4. *Associated with*—Broncho-pneumonia, 16 ; Gastro-Enteritis, 2 ; Influenza, 5 ; Measles, 3 ; Erysipelas, 1 ; Whooping Cough, 2.

ANTHRAX AND SHAVING BRUSHES.

Dr. W. St. C. McClure.

On August 18th a letter was received from the Local Government Board stating that 140 gross of shaving brushes, which had been consigned to four Manchester firms, were suspected of being infected with Anthrax.

On receiving this letter Dr. McClure immediately visited the firms concerned, informed them of the circumstances, and took from each samples of the brushes, which were sent to the Local Government Board and also to Professor Delépine. The firms gave instructions to their branch shops to withhold the sale of the brushes pending the result of the examination.

The four firms had 327 branch shops in various parts of the country.

On August 25th intimation was received from the Local Government Board that Virulent Anthrax Bacilli were present in all the brushes submitted, and on the same day a report was received from the Public Health Laboratory in Manchester stating that Anthrax Bacilli had been found also in the brushes submitted to them.

Dr. McClure, therefore, again visited the four firms on August 25th and arranged for the destruction by the Corporation of as many brushes as could be collected.

Out of 20,160 brushes consigned to Manchester 15,531 were collected and destroyed.

No cases of Anthrax arose in Manchester from this source, but the danger of infection was very serious, and it was fortunate that such a large number of brushes were recovered.

Professor Delépine's report upon the bacteriological investigation is filed in the Health Office.

His conclusion was as follows :—

> "The examination of the five brushes shows that they were dirty, much contaminated with bacteria, including the Bacillus Anthracis, and that some of them at least were also infected with a sporing pathogenic anærobic organism. Bacillus Anthracis Spores were present in large numbers in all the brushes. Practically each hair was infected. From the distribution of these spores it appears that the hair must have been infected before it was fixed in the handle and not as a result of infection of the finished brush. The uniformity of the distribution of the spores suggests that the infection of the brushes is not due to the admixture of a few contaminated hairs, but that during some process of treatment the hair was immersed in some fluid (probably water) in which Bacillus Anthracis had diffused and possibly multiplied. Under these circumstances a large quantity of non-infected hair might be contaminated fairly uniformly by a comparatively limited amount of infected hair."

INFANTILE MORTALITY.

The figures given in the statistical portion of this report show a remarkable reduction in the mortality amongst infants during the last 15 years, culminating in 1916, and, although this year probably indicates low-water mark for some years, it may be hoped that another ebb tide will presently reach a still lower

point. It is well to remember that this remarkable improvement in the health of children under one year of age is not by any means accidental, or something which has been easy of accomplishment, and that it has involved a long process of preparation and the mustering of many forces.

The first great impulse came from France, and originated about 1890. Much of its success was owing to the energy and lucidity of Budin, who helped greatly to bring France back to the vital importance of breast feeding, showing, as he did, by methods not easy to copy here, how the needs of poor children in this respect could be met by able administration. In his methods wet nursing plays an important part. But the scientific spirit in which he dealt with the rearing of children also counted for much. The establishment of gouttes de lait, consultations des nourrissons, and organisations of other kinds for the rearing of healthy children, spread rapidly over the country, and in a short time produced wonderful results. It was some time before the wave of endeavour affected this country, notwithstanding the attention which had been given by isolated individuals, such as Dr. E. W. Hope, of Liverpool, to the subject.

Probably the greatest impulse was given by the publication in 1903 of the Report of the Scottish Commission into the health of school children, consisting mainly of the investigations of Dr. Leslie Mackenzie and Dr. Matthew Hay.

The serious conditions prevailing among school children in Edinburgh and Aberdeen excited general apprehension, and this was still further increased by the report of the Departmental Committee on physical deterioration in 1904. These reports directed general attention to the condition of children entering the schools, and the failure of infantile mortality to improve *pari passu* with the improvement in the death-rate at higher ages was brought into sharp prominence. It was seen that the welfare of children under school age was inextricably bound up with the welfare of the school child, and public feeling was strongly roused on the subject. This feeling resulted in the establishment of the important Conferences on Infantile Mortality so ably introduced by Mr. John Burns. Here again the foundation had been laid by previous workers and writers, amongst whom a special tribute should be paid to the late Dr. Henry Ashby, of Manchester, whose little book on Health in the Nursery was of great practical value. Useful books and reports were also written by Dr. Robertson of Birmingham, Dr. Meredith Richards, Dr. Moore of Huddersfield, Sir Arthur Newsholme, Sir George Newman, Dr. McCleary, and others, which all served to give volume and precision to the movement.

For the last nine years Sir Arthur Newsholme, K.C.B., has virtually assumed the direction of the various public health energies.

The Board of Education has assumed charge of educational and voluntary agencies, under the direction of Sir George Newman.

The clinical and preventive measures required have both been well represented.

At first attention was directed chiefly to infantile mortality, and it was recognised that the unfavourable influences at work varied in different localities. Certain clear principles were early established.

From the beginning it was seen that the greatest need was that the mother should suckle her child during the first seven months at least. This, in its turn, raises the question of appropriate foods for the mother, and maternal feeding.

It was clearly of importance that the mother should have food containing abundance of proteid.

From this point of view it is a disadvantage that the mother should go out to work during the early months of her child's life, and on the whole this position must be recognised. On the other hand better food for the older children, and perhaps for the babe itself, might thus be procured. Nor is it denied that under skilful management an infant can thrive well on good cow's milk properly used. Various important questions are thus raised.

The whole subject of artificial feeding of the infant requires study, and a great amount of study and care has been bestowed upon it.

The artificially fed infant, however, calls for a greater expenditure of attention and skill than the breast fed infant, and the instruction of the mother becomes an important part of the programme.

It soon becomes manifest that this instruction has to extend to many other things besides the best kind of food. Clothing, habits, cleanliness, keeping of foods, maternal care, and other important items are also found to need close attention. The education of the mother and of future mothers becomes a cardinal part of the programme.

The object to be aimed at is such a training as will enable the mother to meet her difficulties with such knowledge and confidence that her instinct will be to do the right thing and not the wrong one—no easy matter. A very thorough-going education at an early age, either before or at the commencement of maternity, must therefore be put in the foreground. Notwithstanding that in some localities a high proportion of mothers going out to work coincides with a low rate of infant mortality the whole tendency is otherwise unless the conditions are very special.

Just at present there is a great demand for the work of married women, and there has arisen a special demand for the provision of Day Nurseries in which the younger children may be looked after while the mothers are at work, and the fulfilment of this demand may give rise to a new order of things.

Provided care is taken to receive only those children whose mothers are obliged to work, and provided that these Day Nurseries are on such a scale as will permit of adequate supervision and equipment, this development may produce good results.

But, on the whole, the health of the children depends on the care expended on them by their mothers, and it is certain that a very large section of the mothers do not understand how children ought to be treated.

They have very hazy ideas as to the kind, amount, and frequency of feeding needed. It is often difficult to get them to appreciate the necessity of absolute regularity. They do not practically appreciate the need for sleep, the need for sufficient suitable and clean clothing, the necessity for clean food and utensils; the vital necessity of warmth for very young children, the value of the bath, and the numerous little personal attentions of the daily routine.

They require to be taught what to do in various infant troubles and to observe carefully the condition of the child. All these things need to be imparted as a routine to girls before leaving school, in continuation classes, and also later on, with studied iteration, so that it may become easier to do the right thing than to leave it undone or do the wrong. This instruction needs to be universal and eminently practical.

In the year 1902 the Manchester Education Committee established such a course of instruction for older girls, which was then conducted with great success by Miss Grace Taylor, and has since been continued. But it would be still better if the ordinary teachers could reinforce these lessons afterwards and continue the teaching. The baby course needs to be extended and repeated at various stages.

One great advantage of this course is that it is general, and a new idea of responsibility in regard to young children is created. The mere extent of this instruction exercises a potent influence.

These lessons are renewed in a very practical form by the Health Visitors of the Corporation and by the Medical Officers and Superintendents of the Infant Welfare Centres. The instruction given at the latter is especially valuable, though it has the disadvantage of being confined to those mothers who attend the centres.

Here, however, another element comes in. The voluntary helpers take an interest in these instructions and learn a good deal which they carry home. In this way knowledge of the right way to deal with children is spread and an atmosphere of increased endeavour in caring for children is diffused.

Nevertheless it cannot be said that this instruction has yet taken its proper place in the education of girls and young women, or that they have as yet received a systematised training such as will enable them easily to do what is best for their children as infants and during their earlier years.

At the Manchester Welfare Centres, and more recently through the Health Visitors, mothers are provided with printed papers of instruction in the kind of food which young children need, which should be of service to them. A small manual of advice is also widely distributed by the Health Visitors. No doubt the needful instruction will ultimately penetrate into all households. But the problem is how with least loss of time to make it general and effective.

There can be little doubt that the most effective work in this direction is being done at present by the Schools for Mothers and the Health Visitors. Each competent Health Visitor and every School for Mothers is acting as a steady and insistent source of instruction to mothers, and it is only needful, therefore, to turn to the tables given opposite page 68, which show in brief the amount of the work. An effort is being made in Manchester to advance, steadily, if slowly, adding to the number of Centres and of Health Visitors.

The Health Visitors are instructed to refer all infants not under the care of Medical Practitioners, as far as practicable, to the Infant Welfare Centres, but especially those which are not thriving. If, however, they have previously been directly under the care of one of the Children's Hospitals they may be referred directly to the Hospitals.

At the present time the Corporation have also the right to occupy 18 beds with children under one year of age suffering from Malnutrition and Diarrhœa in the Babies' Hospital, which is staffed by the Lady Doctors of the City. Here they are submitted to an intensive study.

The work of the Health Visitors is examined by two whole time Medical Officers attached to the Public Health Office, who may refer cases directly to this Hospital from the care of the Health Visitors if they think this to be necessary, without first seeing them at a Centre. Usually, however, they are first seen at a Centre. There are also ten beds in a Ward at Monsall Hospital specially provided for infants, to which children under two years of age suffering from Malnutrition and Diarrhœa are sent by these Medical Officers.

The greater part of their work, however, consists in holding consultations and Clinics at the eight Centres which have already been opened. At all of these consultations are held, and four of them are used as Clinics, in accordance with a scheme.

Six of these Centres have been taken over from the School for Mothers, but the School for Mothers has not ceased to play a very active part in running them. When they were taken over the arrangement was made that the Medical part of the work should be conducted by the Corporation—that is to say, all the duties discharged by the Medical Officers and by the Superintendent Nurses. It is found that these Centres alone nearly suffice to occupy the entire energies of the two Medical Officers. The manner in which they are conducted differs in no essential respect from that in which similar consultations are conducted elsewhere. But the Corporation has been fortunate in securing one Clinic a week from two children's specialists, Dr. C. P. Lapage and Dr. Hugh Ashby, who act as Consultants to the whole time Officers in difficult cases, and take a keen interest in the success of the movement. The Corporation has also been very fortunate in the whole time Medical Officers.

The social side of the work remains under the School for Mothers, which provides instruction in cookery, making up of children's garments, and in elementary hygiene. For the last named service the Superintendents of the Centres are available, but in return the Voluntary Workers of the School assist in weighing the infants and keeping records. The School also provides cheap and free dinners to mothers and sells articles of food which it is needful that the children should have at the lowest possible rate.

This arrangement works well under the able management of the Committee of the School for Mothers and of their Secretaries.

It is of the utmost value to the Medical Officers to have so many beds available to which they can send urgent cases. But they are not confined to these beds, as the Centres can also obtain treatment for urgent cases in the Children's Hospitals. It is, in fact, the aim of the whole organisation to keep in close touch with the different Institutions of the City, to which cases of importance are referred, and from which cases are doubtless referred to the Centres—that is to say, less urgent cases, in which observation, advice, and continued supervision are the chief requisites.

In a sense these Centres are to be regarded as outposts of the Children's Hospitals, though, fortunately, all connected with them are imbued with the necessity of making continued instruction and supervision prominent features of their work.

It will easily be understood, therefore, that there is a constant desire to keep establishing fresh Centres wherever there exists a population of the less

wealthy classes hitherto untouched, since the principles and advantages of the scheme are manifest. The more numerous the Health Visitors on the one hand and the Infant Welfare Centres on the other the more widely diffused is the instruction and guidance furnished to poor mothers.

Nor do the Practitioners have any cause to complain, since every care is taken not to trench on their domain, treatment not being given except when the family is ascertained by inquiry to be below a fixed scale of living, calculated in a suitable manner, and enquired into by an independent organisation.

There are at the present time 36 Health Visitors under Miss Seed. An interesting comparison has been made between the Infant Mortality in successive years and the number of Health Visitors given below :—

Year	Death rate at All Ages *	Infantile Mortality	No. of Health Visitors, &c.
1891	25·95	192	....
1892	23·17	178	....
1893	24·26	201	....
1894	19·82	159	....
1895	24·51	202	....
1896	21·99	176	....
1897	22·35	195	....
1898	21·23	196	....
1909	23·89	205	....
1900	23·78	189	....
1901	21·60	198	....
1902	20·03	151	....
1903	19·45	169	....
1904	20·89	187	....
1905	17·82	159	....
1906	19·00	169	....
1907	17·89	147	....
1908	18·10	152	Health Visitors' Staff of 14 Visitors taken over from Ladies' Public Health Society in January; School for Mothers commenced October, 1908.
1909	17·70	136	Number of Visitors, 15.
1910	15·88	132	,, ,, 16.
1911	17·12	156	,, ,, 16.
1912	16·18	122	,, ,, 17.
1913	15·77	129	,, ,, 17.
1914	16·76	129	,, ,, 18.
1915	16·31	129	,, ,, 27.
1916	14·58	111	Number of Visitors, November, 35 and 1 vacancy. Measles became notifiable in January.

* These rates are calculated on the populations as estimated from the Census figures 1901-1911.

But one must deprecate any attempt to establish a close connexion as yet. There are many other factors at work, chief of which must be mentioned the Infant Welfare Centres. In addition to these there has up to the last few years been great advance in the conditions of housing. Special efforts have been expended in improving the drainage, paving, and closeting of the City, and there is not a shadow of doubt that these have contributed greatly to the improved health of the children.

The Education Department, again, have done much by the establishment of Cookery Centres. I am informed that the great majority of the senior girls in our Schools now receive instruction in Cookery, which is provided at 47 School Centres, while there are 12 Cottages in which a favoured minority can obtain a two months' training in domestic work before leaving school.

The New School of Domestic Economy, under Miss Ross, has entered wholeheartedly into a campaign for the diffusion of instruction in food values and the cooking of the cheaper foods.

All these are important contributions to the results already attained.

Nevertheless, my personal opinion is that by far the largest share of the advance is due to the action, described above, taken by the Sanitary Committee and the School for Mothers, whether regarded from an instructional or from a clinical point of view.

But, although so much stress is laid on the education of the girls and mothers, especially young mothers, there are many other considerations which have to be taken into account, either as forming part of that education or as a necessary adjunct to it.

The question of the food supply must be regarded as coming first. It is, of course, well recognised that for infants under eight months of age it is of paramount importance that they should have the breast. The difficulties in fulfilling this requirement are many. Chief of these is bad advice and want of preventive action. If the milk does not come easily, or if sores develop on the nipple, mothers are badly advised by their neighbours, and perhaps rather easily cease to attempt to suckle their children. Prenatal instruction is therefore needed in the care of the breast, and in the medical and other measures which may be taken to promote the flow of mother's milk, more particularly in the kinds of food most likely to observe this function. This maternal function is also interfered with when mothers go out to work, and it needs, therefore, to be made a condition of the work of mothers outside the home that they shall have opportunities and encouragement to breast feed their infants.

A time comes, however, when the mother must, in any case, cease to suckle her child, and the important question then arises on what the child is to be fed. The ideal food for the child of eight or nine months is certainly cow's milk, and here we are at once faced with the conflict of opinion as to the relative value of raw and boiled milk. The evidence collected by Dr. Janet Lane-Claypon would appear to show that infants thrive as well on scalded as on raw milk, notwithstanding the position advanced that a small amount of raw milk supplies the vitamines needed to make proteids, otherwise unnutritious, perfectly wholesome. In view of the dangers attending the use of raw milk as it is commonly sold and kept there can be no hesitation on the part of the Health Officer in recommending that the milk given to infants and young children should be scalded. But, undoubtedly, it would be still more satisfactory if a supply of milk could be obtained from herds guaranteed free from Tuberculosis, collected under suitable conditions, conveyed under proper precautions as regards temperature to the place of sale, and stored throughout with strict regard to cleanliness. There appears to be now, less than ever, the likelihood of securing such conditions unless Urban Sanitary Authorities are empowered and undertake themselves to become milk producers on a large scale, especially from herds in the neighbourhood of their district. Certain it is that in this neighbourhood the quality of the milk as regards Tuberculous infection has deteriorated within the last two or three years. How far this is due to the advance in average age of cows, how far to lowered quality of feeding stuffs, how far to a selective process affecting the farms retained for the production of Manchester milk, it would be difficult to say. But the necessity for scalding all milk given to young children is thereby emphasised.

It is probable that the addition of a small amount of orange or lime juice to the diet of young children fed on scalded milk would be beneficial, and should be generally recommended.

A way out of the difficulty for individuals is to keep goats, animals free from Tuberculosis, economical to feed, and producing milk suitable for the food of children. But it is questionable whether purveyors of milk could be induced to take up this idea on a scale commensurate with the needs of the young population.

Undoubtedly the whole problem of the milk supply demands careful consideration.

An Artificial Milk has been prepared from the Kola Bean, which cannot at present, apparently, be produced on a commercial scale, but promises to be so in the future. If this anticipation be a just one, it may be necessary to activate this milk by one of the devices mentioned above—say, by the addition of goat's milk or of guaranteed cow's milk to each feed.

It is of great importance that milk should be fresh when consumed, and curtailment of the period elapsing between milking and consumption is to be aimed at. Both dried milk and condensed milk may with advantage be substituted for cow's milk during the Diarrhœa season. But it is generally accepted that these cannot be used continuously over long periods without risk of the production of rickets and other malnutritions. Perhaps, again, it would be well to activate these foods by one of the methods suggested.

Again, although the most conspicuous of the fatal ailments of the infant are gastro intestinal, affections of the lungs also form a conspicuous group. There can be no doubt that these are largely the result of direct invasion of the lungs by injurious gases and by septic and other organisms. The child in a large town, and especially in a manufacturing town, necessarily suffers more than the child in a clean residential small town or in the country. But much can be done in the large town to counterbalance the deterioration of the atmosphere. If the streets are clean, and the whole of the ground about houses which is not garden is well paved and well drained, and if the removal of excreta and house refuse is well arranged, one great cause of the septic lung affections of young children is removed. The provision of a good system of water-closets and house drainage is, therefore, of much importance.

Gastro intestinal disorders are also at the same time reduced, since the conservative system of dealing with excreta subserves the production of house-flies and the consequent carriage of infection.

Another even more potent influence in this regard is the presence of stables scattered amongst houses, in which the utmost care is not exercised to have all manure removed at intervals not exceeding a week. Such removal requires to be meticulously complete, and moreover must be to a distance from the town. The devices of the larvæ of the house-fly to escape destruction are many and curious. Still this purpose could be served with sufficient energy on the part of Sanitary Inspectors, Cleansing Inspectors, Manure Contractors, etc. Unfortunately the shortage of men is at present crippling this work and rendering it difficult to get the necessary precautions observed. Probably in time the public will insist on the necessary measures being carried out.

But there are dangers within as well as without the house. Attention has been formerly called to the manner in which in the same household deaths

from Diarrhœa and Pneumonia alternate or follow one after another. Very often, too, sores of one kind or another occur among the inmates, and the illnesses named above occur, though not perhaps fatal. Such houses one has come to regard as having become foci of sepsis, and it may be worth enquiring whether, as the investigations of the Local Government Board have shown that the Pneumonia of infancy is largely septic, it may not prove that the fatal Diarrhœa of infancy is also partly of septic origin. There seems to be little doubt that Manchester is specially affected with diseases of a septic character; witness Puerperal Fever, Pneumonia in infancy, Scarlet Fever, and Heart Disease.

When one has found such a succession of deaths in a family it is difficult to avoid the feeling that the personal precautions taken have been inadequate.

There is much work still to be done in securing regularity in the routine of child life in feeding, bathing, cleaning, clothing, airing, and in the due observance of sleep. It is perhaps in the last named function of childhood that the greatest defect occurs. The family perhaps is large, the room is small, the noises considerable, and the importance of much sleep for the small child not sufficiently understood.

These requirements bring us to the question of housing. It cannot be said that in Manchester there is, in general, that deficiency of house room or imperfection in the character of the house which should preclude the above conditions from being fulfilled, except perhaps the last. There is indeed a real difficulty in airing the child, and it is a great need of our City that many more small open spaces should be created to which mothers may take their infants in the crowded districts, which should be provided with open sheds under which in wet weather they can shelter, and with seats on which the mothers can rest. But, for the most part, the house is not the chief defect.

The greatest need is the extension and constant repetition of those points in maternal instruction which will gradually alter the maternal point of view, while rendering the infant and child sources of much greater interest and care.

We are, I believe, on quite right lines, but the work is greater than we can accomplish with the means at present at our disposal.

The head and front of the Public Health movement has been Sir Arthur Newsholme, K.C.B., who has thrown himself with ardour into the campaign on behalf of young children, embodying his views in a series of reports, which are admirable alike for the researches which they contain into the causes of infantile mortality and for the stimulus which they have given to Sanitary Authorities throughout the country. The recent volumes by Dr. Hope and

Dr. Janet Campbell, prepared for the Carnegie Trust, and marked by lucid and careful exposition and arrangement, will help still further to point the way to fresh developments. Notwithstanding all that has been done by the Local Government Board there is still room for individual action, especially in the region of practical application.

Besides the reports prepared by Sir Arthur Newsholme there are certain circulars and memoranda issued by the Local Government Board which authorise and require Local Authorities to take certain action, and which require close attention, particularly in regard to local conditions.

The first of these circulars and memoranda is dated July 30th, 1914. The circular announced that an estimate had been laid before Parliament for a grant to be distributed by the Local Government Board in aid of the expenditure of Local Authorities and voluntary agencies in respect of institutions or other provision for Maternity and Child Welfare, and set forth in detail the work in respect of which the grant is to be made. One-half of the expenditure incurred may be defrayed by these grants. It is the intention that the child shall be cared for by one or other assisted agency up to its entering on school life. Grants to institutions of the nature of Schools for Mothers are to be made by the Board of Education. The broad distinction is that work carried out by Local Authorities is to be assisted by the Local Government Board, voluntary work by the Board of Education. The Memorandum of the Medical Officer classifies the work of Local Authorities intended to be assisted under the heads of Ante-natal, Natal, and Post-natal, and these classes are again subdivided. The assistance is intended to be given throughout the whole country, and its chief object is to stimulate Local Authorities to action. It is not intended to supplement the voluntary hospitals already engaged on Maternity work, except where such assistance is needed and is given through the Local Authority.

Each locality has its own special features.

In Manchester there are excellent hospitals for Maternity work and for the treatment of the Special Diseases of Women. These have not regarded it as necessary to apply to the Local Authority for assistance. The St. Mary's Maternity Hospital is available for all poor women in Manchester and district, and examinations are made in the cases of primiparae and others applying for assistance in their confinements, when the history of parturition indicates any likelihood of danger. The medical staff, as a whole, see no great object to be attained by Ante-natal inquiry and aid, by way of Maternity Centres, although the depletion of the staff may have something to do with the position taken up on this question. On the other hand, from the point of view of the Local Authority, it is of the utmost importance that this kind of work should be

initiated by men specially versed in this subject, and it was therefore necessary not to push this part of the scheme at present until the staff of St. Mary's Hospital should be restored to its full strength.

All that we can do at present is to give advice in a general way through our medical officers and nurses to poor mothers whom they see at the Centres or in their homes, giving them general guidance, and, where this seems called for, advising them to obtain medical advice.

An effort was made, however, by the Midwives Supervising Committee to induce the St. Mary's Hospital, the Northern Hospital, the Royal Infirmary, and Ancoats Hospital to establish Maternity Consultations. But the same difficulty existed at all these institutions, so that, rather than start this movement on an unsatisfactory basis, we have allowed it meanwhile to rest, so far as concerns any specific Clinical work.

As regards Natal work, the St. Mary's Hospital staff point to the ample facilities which they give for the work classified under this head. While one admits the excellent work done by this institution, there is no finality to work of this kind until it is apparent that the utmost has been attained which local circumstances permit, and it must be the aim of the Local Authority to ascertain by the best means attainable all the dangers which threaten the pregnant woman, and to find remedies for them.

There can be do doubt, for example, that the health of many mothers is undermined and the safety of their offspring endangered by Venereal Disease, which it is the duty of the medical profession to investigate and treat, thereby averting much distress from mothers and saving the lives of many children in utero. The causes of abortion, miscarriage, and still-birth have not yet been fully investigated, and here also there is a field for preventive work.

The results of the extension of Child Welfare Work are so manifest that we are encouraged to believe that a similar extension of Ante-natal work will produce at all events an improvement in the birth-rate and a diminution in the proportion of children dying in the first few weeks after birth. In the increased attention directed to the health of the mother before birth midwives should be encouraged to take their share, and might do useful work. It is, perhaps, not easy to see how this encouragement may best be brought about. nor how the midwives can best help. But it is clearly the duty of the midwife to enquire into the history and health of every mother engaging her beforehand for a confinement. If two conceptions have failed, a third failure should not occur without special inquiries and efforts to avert a like misfortune.

Further, it suffices to visit any poor quarter in Manchester to see how much needs to be done for the instruction of mothers in averting misfortune from the period of child-birth.

One feature of child-bearing has attracted much attention, viz., the unhappy position of mothers at that period if they have a young family to care for, a position which often causes them to resume their domestic work before their strength has been re-established. This has led to the establishment of the Society of Home Helps, which deserves encouragement and support. Some such assistance is needed to enable pregnant women either to take advantage of the Maternity Hospital or to rest at home in peace for a sufficient length of time.

Further, the proposal long ago put forward by Sir William Sinclair has lately received much attention, viz., to establish Hostels in different parts of Manchester under the care of a skilled midwife, where women whose circumstances preclude them from applying to the Maternity Hospital could lie in.

There are such homes for women who are comparatively well off. But no provision has been made of this character, so far as I am aware, for the wives of artisans or women of like circumstances.

Probably it would be best to take, say, three adjoining cottages, and adapt them to this purpose, in two parts of the City. These cottages would be fitted up by the Corporation, and staffed by them, but the patients would be attended in their confinements by their own medical attendants. Charges would be made which would suffice to cover expenses. Such charges would certainly exceed the amount of the ordinary maternity benefit.

But, assuredly, this experiment should be tried. It involves two separate things: (1) The provision of Cottage Lying-in Homes; (2) the provision of Home Helps in suitable cases, a provision which probably could best be made by assisting the Home Helps Society.

Should this experiment prove a success other Lying-in Homes would be established in different parts of the City with the experience gained from the first experiment, and a much felt want would be supplied.

For the reasons already stated, the immediate application of the circular and memorandum of 1914 to Manchester came to be restricted to Post-natal Maternity and Child Welfare. In other respects than the foregoing, the Ante-natal and Natal work contemplated had been by no means neglected. In pursuance of the Midwives Act, 1902, and of the Regulations made thereunder by the Central Midwives Board, the Midwives Supervising Committee,

constituted in 1904 by the City Council under the chairmanship of Dr. A. W. Chapman, proceeded to give earnest and prolonged consideration to the best means for carrying out the intentions of the Act, so far as it rested with the Local Authority. The result of their deliberations has been set forth in consecutive Annual Reports. They decided, most wisely, that their Executive Officers should be medical women, and their choice of Officers has been singularly fortunate. Their first Medical Officer, Dr. Margaret Merry Smith, was appointed in 1905. Their second Officer, Dr. Barbara Cunningham, is at present on service abroad, her permanent position being Inspector under the Insurance Commissioners. Dr. M. Douglas-Drummond has occupied this position with much ability for the last five years.

Amongst other subjects to which the Committee directed their special attention was Ophthalmia Neonatorum, the chief cause of blindness in infancy, and they early drew up instructions on the subject, although it was not till later that the present two Eye Nurses were appointed. In this work they received valuable assistance from the Royal Eye Hospital. In 1905 a booklet explanatory of the rules of the Central Midwives Board was issued to midwives, as were also instructions in the care of infants in the first ten days of life.

A subject which early claimed the attention of the Committee was the payment of medical practitioners called in to attend urgent illness in the mother or child. A list of such occasions was drawn up and the scale of fees settled. This was subsequently agreed to at a conference with representatives of medical practitioners. It has been revised from time to time in view of the varying exigencies of different periods.

Much pains were expended by the Executive Officers in the instruction of midwives, and a higher standard of efficiency was gradually attained. But it still remains necessary to make continued efforts to improve the quality of midwives.

Cases of Puerperal Fever have been consistently admitted into Monsall Hospital.

A special testimony should be given to the valuable help given by the late Dr. Arnold Lea in drawing up the earlier instructions issued by the Committee.

It does not seem needful to mention other matters which are part of the ordinary administration of the Act.

But it may be mentioned that in 1905 it was considered necessary that all registered deaths of women occurring shortly after child-birth should be specially investigated, and that several deaths not so designated were in this way considered to have been due to Puerperal Fever. It is possible that the death-rate from Puerperal Fever and accidents of child-birth has in this way been to some extent increased.

Having regard to the great amount of skilled work done in Manchester, it might reasonably be expected that the mortality from Puerperal Fever and from accidents of child-birth would show a special decline. The figures are somewhat disappointing. The proper figure for comparison is the total death-rate from Puerperal Fever and accidents of child-birth.

The following figures are extracted from the volume prepared by Dr. E. W. Hope for the Carnegie Trust :—

DEATHS PER 1,000 BIRTHS FROM PUERPERAL FEVER AND COMPLICATIONS OF CHILD-BEARING, 1911–13.

County Borough	Puerperal Fever	Complications of Childbearing	The Two Causes Combined
Hull	1·10	1·90	3·00
Leeds	1·10	3·43	4·54
Leicester	1·40	2·70	4·10
Liverpool	0·80	2·00	2·80
County of London	1·38	1·53	2·91
Manchester	1·18	2·01	3·19
Newcastle	0·40	3·30	3·70
Nottingham	1·45	2·25	3·70
Portsmouth	0·80	2·30	3·10
Salford	0·80	3·10	3·90
Sheffield	1·30	2·50	3·80
Stoke-on-Trent	1·20	3·00	4·20

The Annual Return of the Local Government Board gives for Manchester the highest rate of incidence from Puerperal Fever among County Boroughs. But here, again, we must not conclude that this represents the true facts, as is evident from the above figures. The fact is that the definition of "Puerperal Fever" used in Manchester is such as to encourage free notification.

To pursue the question of the Local Government Board circulars, the circular and memoranda already mentioned were followed in 1915 by a circular explanatory of the Notification of Births (Extension) Act, 1915, which made

universal throughout the country the Notification of Births Act, 1907, and by regulations under which grants are to be paid by the Local Government Board in respect of Maternity Centres during the year ending 31st March, 1916.

As previously stated, no "Maternity Centre" in the strictest sense of the word has been established, but a statement will be made below as to the present position of Child Welfare Work.

In 1916 fresh circulars and a memorandum were issued along with those previously circulated.

The circulars are concerned with the conditions under which grants will be made, while the memorandum by Sir Arthur Newsholme deals with the character of the work and the conditions under which it should be carried on. Special attention is again drawn to the need for maintaining supervision over the health of children up to school age.

In pursuance of the circular and memorandum of 1914, a Scheme for the extension of Child Welfare Work was presented to the Sanitary Committee, bearing date March, 1915, was passed by that Committee and by the Council, and was then forwarded to the Local Government Board, by whom it was approved.

It provides for the appointment of 32 Health Visitors and 4 Nurses, in addition to the taking over of the medical and nursing work of the School for Mothers and the creation of 4 new Centres. In all 10 Centres are thus authorised, of which 4 are to be Clinics and Consultation Centres, the others being used only as Consultation Centres. The total number in existence at present is 8, of which 4 are Clinics. Under the Scheme 10 Centres in all are to be opened.

As already explained, the difficulty in completing this Scheme is to get suitable houses in the poorer districts to serve as Centres. But already there is great pressure on several of the existing Centres, and extension will soon be a matter of necessity, unless we are prepared to retrograde.

It is in regard to the Health Visitors that the greatest difficulty arises, and it is, therefore, necessary to give special attention to this question.

The subject is complicated by the necessity which arises in summer to divert the energies of the staff to Summer Diarrhœa. Further, by an Order of the Local Government Board, Measles and German Measles were made notifiable diseases as from January 1st, 1916, and the necessary staff had to be found to administer the new Order according to the terms of the duties laid on the Medical Officer of Health. It is very difficult to say how many additional

Health Visitors would be required to visit all cases and to carry on the additional work entailed by the annual occurrence of Summer Diarrhœa. Provisionally, and recognising the inadequacy of the request, four Health Visitors were asked for to assist in visiting cases of Measles, but with the understanding that the work would be distributed over the entire staff as required. As a result of the altered arrangements it was found necessary to cut off the systematic visiting of houses, hitherto carried out with great advantage to their cleanliness.

In addition to the above staff, comprising in all 36 Health Visitors under a Superintendent and Deputy-Superintendent, one Nurse has assigned to her the duty of looking after the verminous cases referred by the Education Department, seeing to their cleansing at the Cleansing Station, and giving evidence in Court when required.

The following is a summary statement of the Maternity and Child Welfare arrangements :—

The "Maternity Centres."

Two visiting physicians, each once a week on Monday at Rosamond Street, Chorlton-upon-Medlock, on Tuesday at 1, Manipur Street, Openshaw. Two whole-time Officers hold the other sessions, which generally occupy about 2½ hours, and do other work. The number of Clinics or Consultations at each Centre in the week are: Openshaw 5, Rosamond Street 4, Ancoats 2, Collyhurst 2, Cheetham 2, Lower Moss Lane, Hulme 1, West Gorton 2, Ardwick 1. The Medical Officers also revise the reports of the Health Visitors. Each Centre has a Superintendent Nurse, who assists the Medical Officers, advises the mothers, superintends weighing, gives lectures, visits at the home when necessary, and forms the link between the School for Mothers and the Corporation. Eighteen beds for infants are retained in the Babies' Hospital, and ten are in use for children under two years of age at Monsall Hospital.

Health Visitors.

The Health Visiting Staff owns a Superintendent, Deputy-Superintendent, and Nurse for verminous cases. There are 36 Health Visitors, four of whom were appointed in connection with Measles. Nearly all are fully-trained Nurses, though there are two or three highly efficient and skilled Health Visitors who are not. In addition there are three untrained Health Visitors who were taken over from the Manchester and Salford Ladies' Health Society.

The aim of the Corporation is to secure fully-trained Nurses, and this rule is adhered to as closely as circumstances permit. Four Clerks are fully employed, and in addition the services of an untrained Health Visitor are utilised for clerical work.

The work is directed by an Infant Life Preservation Sub-Committee of the Sanitary Committee under the Chairmanship of Councillor Margaret Ashton.

A statement of the work done will be found in Miss Seed's report attached herewith, and attention is specially directed to the tables showing the arrangements of the work as carried on at present, in districts, and the prospective arrangements, and to the maps accompanying those tables (maps not reproduced).

The Midwives Supervising Committee has an Executive Medical Officer, with two Assistant Nurses.

Two Eye Nurses appointed in 1911 just suffice for visiting and instructing mothers in cases of Ophthalmia Neonatorum. These are under the Sanitary Committee, but, in fact, their work is supervised by the Executive Officer of the Midwives Supervising Committee.

List of Papers of Instruction used.

(A) Midwives Supervising Committee :—

Instructions to Midwives.

Instructions to Monthly Nurses.

Care of Infants during the first ten days of life.

(B) Work of Health Visitors, or of the Hospitals Sub-Committee so far as concerns young Children :—

Instructions as to the Care of Infants (pamphlet).

The Diarrhœa Season : Advice to Mothers, and directions for the Care and Feeding of Children suffering from Diarrhœa.

Precautions against Diarrhœa in Infants.

Precautions against Measles.

Precautions against Whooping Cough.

Notification and Isolation of cases of Measles, German Measles, and Whooping Cough.

The House-fly.

Cleansing for Vermin.

Suggestions to Householders.

Exposing Children to Risk of Burning.

(C) Maternity Centres :—

Diet Table and Instructions for Rickety Children.

How to Feed a Child of one year and up to three years (card).

Diet from one year to 18 months (card).

There can be no doubt whatever that the Order of the Local Government Board making Measles a notifiable disease, considered only by itself, is much needed, and has been most beneficial. It has been carried out at the expense of the visits previously paid by the Health Visitors to infants under one year of age, and of the systematic house to house inspection which they previously carried out. But it has enabled us to alter the outlook of parents on this formidable disease, to secure some measure of isolation, and to have the children placed under better conditions. It has also enabled us to insist on the need for having all milk given to infants during and after the course of Measles boiled before use, an important matter in view of the prevalence of Tuberculous infection in milk.

We have endeavoured to visit all cases of Measles, and though it will be necessary to reduce the extent of our operations, one great advantage accruing is that the need for increased care has been impressed on households through the City.

As a matter of fact, apart from Measles, it is quite impossible to carry out the intention of the Local Government Board to maintain systematic supervision over the earlier years of life without a considerable increase of staff. The calculations needed to make the position clear are somewhat involved, but an endeavour will be made to do so.

It has been our custom to pay a visit once a month to every infant brought under the charge of the Health Visitors. The districts visited are in the poorer parts of the City, and many of them require more frequent visiting than this. Others may safely be visited at less frequent intervals. But the average cannot with advantage be made less frequent. Supposing the interval between visits were two months, there is time for the child to cease thriving, and to go downhill to an extent not easy to reverse. This appears quite evident from the histories given by the Health Visitors.

In the memorandum of the Local Government Board it is estimated that a Health Visitor can pay 15 Infant Welfare visits a day, doing no other work, and it is desirable first to see how this agrees with our experience.

As a matter of fact we are never able entirely to disentangle the systematic visitation of infants from other work. But this is approximately possible in 1915, in which year the total visits paid to infants by 19 Health Visitors was 63,424. This gives an average of 14 visits a day, and if allowance is made for other work, recorded in the Annual Report on the Health of Manchester for 1915, the above is equivalent to more than 15 visits a day, if no other work were done. In arriving at the above figure the number of working days has been taken as 238·5. This figure is made up as follows :—Non-working days, Sundays, 48 ; Saturdays, 24 ; Holidays, 34·5 ; Sickness, 20 ; total 126·5. Deduct from 365, we get 238·5.

Taking the same basis of working days for 1916, we find that the average numbers of visits, of all kinds, paid by Health Visitors were, in quarters, 31,095, 34,945, 35,493, 35,082, which give the average number of visits per day per Health Visitor, first quarter, 17 ; second quarter, 19 ; third quarter, 18 ; fourth quarter, 15. In the last quarter there was an exceptional incidence of sickness.

It is not possible to deduce that more than an equivalent of 15 visits to infants were paid. Probably this figure approximates to the fact. But it should be pointed out that if the number of revisits relatively to the number of primary visits paid were much reduced the number would be decidedly reduced.

It is, therefore, manifest that the amount of work done agrees closely with the estimate of the Local Government Board.

But the total number of births visited shows a different result.

The average number of new births visited by each Health Visitor in 1915 was 277. The number of revisits paid in that year exceeded the proportion of 11 to 1, being 58,156, as against 5,268 primary visits.

In 1916 the average number of new births visited during the first six months was at the rate of 288 for each Health Visitor per annum, notwithstanding the large amount of work done in connection with Measles.

The proportion of revisits in that period, however, was much reduced, the total number of revisits being 32,173, as compared with 4,442 primary visits. It will be seen that the proportion is lowered for the same reason that the number of new births per Health Visitor is higher than in 1915, namely, that the full number of revisits was not being paid.

At the same time there was a real dislocation due to the number of cases of Measles visited.

The influence of Measles work in 1916 is shown in the following figures :—

	Births Visited	Revisits	Measles. Primary Visits	Measles. Revisits	Number of Health Visitors
First quarter	2,214	18,205	1,921	2,805	31
Second quarter . .	2,228	13,968	4,826	7,957	31
Third quarter	3,137	18,304	1,717	6,620	34
Fourth quarter . .	2,554	19,672	2,252	4,006	35

In the first quarter the average number per Health Visitor of new births visited was at the rate of 289 per annum.

In the second quarter the average number was at the rate of 288. But the number of revisits was greatly reduced.

In the third quarter the average number was at the rate of 366, owing to the appointment of four additional Health Visitors, which permitted arrears of new births to be overtaken. But the reduction in the proportion of revisits continues.

In the fourth quarter the average number of new births visited was at the rate of 289. The proportion of revisits, however, has increased.

The average of new births visited for the four quarters was actually 308. It should be added that a limited amount of supervision was being exercised at ages beyond the first year. The number of new births visited rises or falls according to the fall or rise in the number of revisits, and, taken by itself, is no index to the amount of work carried out.

It is worth while enquiring how many Health Visitors were effectively occluded, so far as Infant Welfare Work is concerned, by visits to cases of Measles.

Taking the number of working days as 60 in each quarter, and assuming that the average of 15 visits a day would apply to primary and secondary visits alike, we find that the number of Health Visitors, doing nothing else, who would have been required to carry out the Measles work was in quarters (1) 5, (2) 14, (3) 9, (4) 7.

It will be seen, therefore, that the staff effective for infant visiting was greatly reduced, especially in the second quarter of the year.

The irregularity thus introduced into the work is perhaps the most serious consideration.

It will be manifest from the above analysis that under existing conditions the number of births per Health Visitor followed up through the first year of life, on the system hitherto pursued, that is to say, with an average number of revisits for each birth of not less than ten, cannot be put at a higher figure than 250 per Health Visitor. This would give for the 36 Health Visitors 9,000 new births dealt with per annum.

It is doubtful whether the second year of life does not require nearly as much care as the first, if the same vigilance is to be exercised. Probably an average

of eight visits per child in the second year and four in each of the two subsequent years would suffice. The number of visits to children in the next three years would thus be in the neighbourhood of 14, allowing for deaths and removals, as compared with 12 in the first year.

If we assume that 9,000 births would entail 90,000 subsequent visits in the first year of life, we get for these 9,000 new births an annual number of visits of 99,000. Taking the proportion of visits to these in the three subsequent years in the proportion of 7 to 6, which allows only two visits in the fourth year, we get 115,600 visits, and deducting 10 per cent. to allow for deaths and other occurrences we have a requirement of 104,040 visits which would be needed.

Dividing by the number of working days, 234·5, we get 444 visits required in each working day. At the rate of 15 visits a day this would need an addition of 29 Health Visitors.

It should be pointed out, however, that this is on the hypothesis that the important work of house to house inspection is not resumed, a possibility which one would strongly deprecate.

Moreover, it is also on the hypothesis that the visiting of cases of Whooping Cough, only a less important duty than that of visiting cases of Measles, is not taken up, and it has now been settled that this shall be carried out by the Health Visitors.

The questions arise: Are there not deductions to be made from this calculation? and cannot part of the work be omitted without serious impairment?

Can we apply the estimate of 15 visits a day to subsequent years as if there had been no previous records and no previous knowledge of the children?

Saving of labour undoubtedly arises from both of these causes, but it is not so great as appears, each year of age presenting its own illnesses and its own problems. There is also a saving owing to the concentration of visits.

We are endeavouring to reduce the amount of work by keeping our Health Visitors' records on card index forms.

There is some saving of time in this way, but it is at the expense of clearness and efficiency.

The Medical Officers and Superintendent of Health Visitors do not get the same insight into conditions or into the quality of the Health Visitors' work as they did under the former system of reports, to which it may be necessary to return.

A saving might be effected, say of two Health Visitors, if cases of Measles were not personally visited in the outlying districts, Withington, Chorlton-cum-Hardy, Whalley Range, Burnage, and parts of Cheetham and Crumpsall.

It is conceivable that labour might be saved by refraining from visiting houses in which all the children have previously been saved, or in which, in the case of Measles, it could be assumed on a first visit that adequate measures would be taken for the welfare of the child and the protection of the public.

It is very doubtful whether such distinctions are either prudent or profitable.

At all events it is quite evident that, under existing conditions and methods, the work at present devolving on the staff of Health Visitors cannot be carried out effectually without a considerable increase of staff, while as a matter of fact it has suffered greatly during the past and present year. Considerable improvement will be experienced if the Local Government Board agree to the extension in the staff now before them, and at the end of two years we should see where we stood.

The policy of the Local Government Board to extend control over the preventable diseases of infancy is one which promises fruitful results, on condition that the necessary administrative means are provided and used.

Day Nurseries.

Up to recently the only Day Nursery existing in Manchester for the care of the younger children and infants of mothers going out to work was the Hulme Day Nursery in Chester Road. Only those children whose mothers are obliged to go out to work are taken. The number of cots for infants is 10, and the number of older children who can be cared for is between 20 and 30.

The hours are from 6-0 a.m. to 6-30 p.m.

Since 1913, also, a Day Nursery has been established in Elm Grove, Didsbury, the average daily number of children being now 18–20.

Day Nurseries have not been very successful in Manchester, the chief reason being probably that the prevailing type of house in Manchester is the cottage, so that everywhere, except under special circumstances and for limited numbers, the population requiring assistance of this character is spread over a considerable area.

Those living at a considerable distance from the Day Nursery will not take the trouble, or find it inconvenient, to cover the distance. Custom also has had an influence hostile to the movement.

But, under the special conditions existing at present, a vigorous movement has arisen for the establishment of Day Nurseries, and the Manchester and Salford Council for Day Nurseries have already opened two new Day Nurseries in Manchester, one in connection with munition workers. Doubtless this movement will extend. Also the Manchester School for Mothers has opened a Day Nursery adjoining the Openshaw Centre. This is worked in conjunction with the Centre, and children at the Centre requiring observation are admitted on the recommendation of the Medical Officers, and are under both care and observation. Perhaps this provision of Observation Centres in connection with Maternity Centres may develop in various ways.

No doubt under the stress of the time further Day Nurseries will be provided, and the care of the children may be turned to good account in the education of mothers.

But, in the normal course of events, it is better for both mothers and children that the mother should have for her chief work the care of her family. For this purpose she needs instruction, and in special cases she requires assistance if her duty to the State is to be performed in such a manner as the welfare of the nation requires.

To every contribution from the State there is, or should be, the express condition that any grant made is used so as to fulfil the purposes of the grant, and sufficient evidence should be obtained to this effect.

The Day Nurseries and Nursery Schools are by no means all on the same lines. Thus the Hulme Day Nursery in Chester Road cares for the children of mothers obliged to go out to work. This is also true of the two Day Nurseries recently opened by the Manchester and Salford Council for Day Nurseries, one of these being for the children of munition workers. The Nursery School at Collyhurst continues up to school age the care of infants who have been treated at the Collyhurst Centre, and devotes special attention to ailing children. This is a much needed extension of the activities of the Centre. The Day Nursery at 1, Manipur Street, Openshaw, belonging to the School for Mothers, is similarly devoted to the care of ailing children. Neither of these have any reference to the mothers going out to work.

Another type of Day Nursery is that held in Marsland Street by Miss Steel. This lady was formerly at the head of the Fielden School, Victoria Park, and has devoted herself to the establishment and supervision of this institution, which comprises a Day Nursery for children between two and five, in which about 26 children are at present cared for. On the first floor the premises have been converted into a Lads' Club. It contains two billiard tables, and the number of lads has reached 60. Miss Steel visits the houses and advises the mothers in various ways.

These activities are carried on in five cottages, the yards in the rear having been converted into one, in which the children sleep out in the afternoon in fine weather.

The whole subject of the aims and uses of Day Nurseries is under consideration, and though one must hold fast to the central idea that the mothers are to be educated and assisted in looking after their children, it may be that there is a wider field for judicious voluntary work of this kind than one had supposed.

STATEMENT OF WORK DONE BY THE HEALTH VISITORS.

By Miss Seed.

During the year 1916 the Infant Life Preservation Sub-Committee met ten times.

The staff at the end of the year consisted of the Superintendent, the Assistant Superintendent, four female clerks, at a salary of 30s. a week, 36 Health Visitors, 31 of whom were certificated, and received salaries ranging from 30s. to 45s. a week, the remaining five having been taken over from the Ladies' Public Health Society by the Corporation in 1908, their salaries varying from 18s. to 30s. a week. Three of the Health Visitors resigned and eleven new appointments were made.

The duties of the Health Visitors, as published in the Annual Report for the year 1908 have undergone little change; but the compulsory notification of Measles which came into force in January, 1916, has added considerably to their work, and, as is shown in the following table, often to the disadvantage of other branches of the work.

In July, four Health Visitors, who are included in the 36 mentioned above, were appointed specially for the Measles work, but as all cases of Measles occurring throughout the City were investigated, the other Health Visitors had also to be called upon to assist, particularly while the epidemic was at its highest, as it was during the spring months of 1916.

Notification of Births Act.—The total number of notifications received under the Act was 14,307, of which 3,776 were made by doctors, 9,820 by midwives, and 711 by the parents. Out of the total of 14,307, those occurring in the districts covered by the Health Visitors numbered 8,928. The registered births within the City numbered 15,578, and 9,887 were referred to the Health Visitors. Apart from these figures, 63 other infants were discovered by the Health Visitors.

Six new districts were opened during the year, namely, Ardwick East, Hulme South, Bradford, Harpurhey, Newton Heath, and Blackley. Owing, however, to the prolonged illness of one of the Health Visitors, and the postponed appointment of her successor, the district of Blackley was not worked.

The opening of the new districts is accountable for the increase in the primary visits to Infants. The visitation of all infants as soon as possible after birth, being work of such undeniable importance, has received every care, but a great many of these primary visits were lamentably late, owing to the stress of Measles work, which fact is likewise the cause of the smallness in number of the subsequent visits to infants, house-to-house inspection, and visits to verminous and other cases, which are proportionately much fewer than those of the previous year.

Two tables of the work done by the Health Visitors are appended to this report.

Table 1 shows the total work for 1916 as compared with that for 1915.

Table 2 shows the work of each Health Visitor in her particular district during the year 1916, and also indicates the changes it is desirable to make in the division of the areas worked, so that the number of births may be more evenly distributed, and thus enable the Health Visitors to continue as far as possible the care of the children born in 1916 throughout the second year of life. It will be noticed that the Health Visitors for the districts which require the more constant visiting have the smallest number of births allotted to them.

It was no longer found necessary to utilise one Health Visitor specially for the infants who had removed to unvisited areas, as it was quite possible since the addition of the new districts for such infants to be easily visited by the Health Visitor whose district most nearly adjoined the unvisited one.

The value of the Infant Welfare Centres is more and more felt in the work of the Health Visitors, and these two important factors in the prevention of infant mortality are now very closely linked together. The Health Visitors attend the Centre for their district periodically, with their particular cases, while the Medical Officers of the Department give weekly lectures to the Health Visitors. Instruction in the work relating to Measles was given by the Medical Officer of Health.

Deaths.—911 deaths of infants under one year of age occurring during 1916 in the districts covered by the Health Visitors have been investigated. The following is a summary of the results :—35·5 per cent. were delicate at birth, 24 per cent. were born prematurely, 34·2 per cent. died previous to the first visit, and 34·5 per cent. died under one month. 639, or 70 per cent. of these infants were breast fed at birth, but only 346, or 38 per cent., were being so fed at death. Pneumonia and Bronchitis were responsible for 22 per cent. of the deaths, Prematurity for 19 per cent., and Enteritis for 14 per cent.

Table showing details of Feeding, etc., of Infants who died under One Year of age during the year 1916.

(* Health Visitors Districts.)

Districts Visited	No. of Births Visited in 1916	No. of Infants Dying Under One Year	Not Strong at Birth	Born Prematurely	Feeding at Birth			Feeding at Death			Not Fed at all	No Information Obtained	Reasons why Hand Fed or Weaned				Child "Nursed Out"	Mother Worked During Pregnancy		Child Died Previous to First Visit	Child Died Under One Month	Principal Diseases Causing these Deaths					Prematurity	Other Diseases
					Breast Fed	Hand Fed	Mixed Feeding	Breast Fed	Hand Fed	Mixed Feeding			Insufficient Breast Milk	Health of Mother	Mother Worked	Other Reasons		3/12	6/12			Enteritis	Pneumonia and Bronchitis	Marasmus and Malnutrition	Whooping Cough	Debility		
...coats	1,014	147	53	34	111	22	2	57	62	16	12	..	19	13	9	29	18	14	31	39	43	22	34	13	14	6	22	36
...aral	299	41	9	9	30	2	1	18	10	5	4	4	7	3	2	1	1	2	9	8	9	3	13	3	..	2	6	14
...George's	1,357	157	53	22	126	13	2	51	68	22	14	2	35	8	7	36	10	13	25	42	43	34	41	6	8	12	19	37
...rlton-upon-Medlock ..	1,004	72	24	23	40	21	1	20	38	4	5	5	13	6	1	17	3	3	8	38	35	9	8	8	2	..	20	25
...me	1,473	171	47	45	120	23	4	71	66	10	17	7	32	10	3	29	5	12	35	60	59	21	41	11	9	7	39	43
...wick	1,051	82	34	21	54	15	1	39	28	3	10	2	7	7	1	14	2	6	16	42	45	9	15	4	5	3	14	32
...t Gorton	429	47	14	12	35	4	1	13	21	6	7	..	14	4	3	5	4	2	14	10	13	7	9	1	4	..	11	15
...ton	616	41	19	11	24	6	1	15	13	3	7	3	4	1	2	8	1	2	7	21	19	6	5	..	1	1	11	17
...nshaw	249	26	14	9	15	4	1	10	7	3	6	..	3	..	2	5	1	2	3	10	11	2	6	..	1	2	7	8
...dford	271	19	12	7	11	2	..	6	5	2	6	..	4	..	..	3	..	2	4	7	7	..	6	2	..	1	6	4
...wick	332	24	9	2	18	2	..	8	7	5	4	..	4	..	..	6	1	2	4	6	7	3	7	1	..	2	2	9
...rton	796	61	23	14	41	14	2	28	28	1	3	1	14	7	..	9	..	2	5	17	13	11	11	3	5	1	11	19
...purhey	391	23	13	10	14	4	2	10	9	1	3	..	6	..	..	2	..	2	..	12	11	1	4	3	1	..	6	8
Total	*9,292	911	324	219	639	132	18	346	362	81	98	24	162	59	30	165	46	64	161	312	315	128	200	55	50	37	174	267

* These Districts and figures do not include the Special Districts of Bradford and Openshaw.

As often previously stated, the work of the Health Visitors is always more or less disorganised during the months of July, August, and September, owing to the incidence of summer Diarrhœa. Special effort was made this year to get into touch immediately with all infants suffering from this disease, and many mothers availed themselves of the printed post-cards left previously for this purpose by the Health Visitors.

Some 285 cases of Diarrhœa were visited between the 15th of July and October 30th. 29 of these cases occurred during the last two weeks of July, 145 in August, 82 in September, and 29 in October. Ancoats and St. George's recorded the highest number of cases, the figures being 62 and 53 respectively. In Openshaw and Gorton only four cases were visited. Of the 285 cases, 196 were under one year of age, and 94 of the children died. 76 of the total deaths were under one year of age, 53 being hand fed at the onset of the illness, and six having mixed feeding.

Verminous Work.—The Cleansing Station has been very little used in comparison with other years, this fact being mainly due to the small amount of time the School Nurses have been able to devote to verminous work in the schools. The Cleansing Station was only in use on 12½ days at the request of the Education Authorities, and on five other days for the purpose of cleansing five families, whose verminous condition was beyond the cleansing by home methods. Altogether, 134 children were cleansed. This work is still carried out by the Special Nurse appointed by the Infant Life Preservation Sub-Committee.

Of the 134 children brought to the Station, 18 had body vermin only, 26 had head vermin, and 90 were suffering from both body and head vermin; 11 children were suffering from Impetigo and 5 others from Blepharitis, Discharging Ears, etc. Legal proceedings were taken against the parents on account of the verminous condition of their children in four instances, and fines of 5s., 2s. 6d., and 10s. were imposed.

In addition to her work at the Cleansing Station and the other duties deputed to her, the Special Nurse has visited 17 new cases of vermin, etc., and has paid 243 subsequent visits with reference to the same. These cases were principally those outside the Health Visitors' areas, but included a few special cases needing constant visiting and care.

The notifications received from the Education Department *re* verminous children number 115 and those *re* scabies 7.

Some cases of neglect, both verminous and from other sections of the work, were reported to the N.S.P.C.C. About 50 such cases were referred throughout the year, and visits from the Society's Officers have been helpful, even without resorting to a prosecution. Only in one case was a Health Visitor called as a witness for a prosecution. The case was one of extreme neglect.

We are again indebted to the Lord Mayor, through whose kindness we received a supply of Charity Forms, which enabled us to recommend a number of necessitous cases for gifts of sheets, blankets, or flannel. We also received a number of flannel garments for infants, and for these our best thanks are due to Councillor Miss Ashton, who so kindly arranged for their being made. These garments are distributed by the Health Visitors as occasion arises.

Other charitable sources have enabled 384 families to be assisted with food or clothing.

A bountiful gift of coal was received via the City League of Help during the month of December. This has been of the greatest possible assistance to the Health Visitors in their work amongst sickness and poverty. By the courtesy of the Chairman of the Highways Committee, the coal was stacked at the various Highways Yards, so as to be easily accessible for all districts. The administration of the gift was placed by the Lord Mayor in the hands of the Medical Officer of Health, but applications for grants of coal are made to him from outside agencies as well as from the Health Visitors.

A summary of the work done by the Health Visitors under the supervision of the Ladies' Society for visiting the Jewish poor, and of the Medical Officer of Health, is given in the following tables :—

Work of the Jewish Health Visitors during the year 1916.

DISTRICT	Houses Visited		Condition of Houses							No. of Houses containing Lodgers	Complaints requiring action by Sanitary Department	Sickness			Leaflets left at Houses
	First Visit	Not First	Dilapidated	Not Dilapidated	Clean	Dirty	Improved since last Visit	Not Improved	Overcrowded			Infectious	Non-Infectious	Total Sickness	
Red Bank	128	641	58	711	704	65	175	466	...	229	199	5	269	274	682
Strangeways	...	764	3	761	734	30	130	634	...	147	113	17	80	97	717
TOTAL	128	1405	61	1472	1438	95	305	1100	...	376	312	22	349	371	1399

DISTRICT	Disinfecting Powder left at Houses	Limewashing							Reports as to Children being Neglected (clothing, food, &c.)	Help Rendered Help rendered includes :—Giving food, clothing, &c., advising mothers as to care and treatment of children, making of sick beds, cleaning houses for sick persons, obtaining recommends for Convalescents, &c.	Infants Visited	Visits re Phthisis	Re-inspection of Houses
		Living and Bed Rooms	Kitchens	Yards	Closets	Cellars	Coal-places	Ceilings	Staircases					
Red Bank	724	4	4	45	38	3	1	1	3	...	162	1507	...	1073
Strangeways	724	...	13	40	45	7	1	...	2	...	60	730	11	329
TOTAL	1448	4	17	83	83	10	2	1	5	...	222	2237	11	1402

TABLE I.—SHOWING THE WORK DONE BY THE HEALTH VISITORS DURING THE YEAR 1916 AND COMPARING IT WITH THE WORK DONE IN 1915.

Classification of Visits.	Number of Visits Paid in 1916.	Number of Visits Paid in 1915.
Primary visits to Infants	10,091	6,294
Subsequent visits to Infants	61,113	62,398 + 783 *re* removal of Infants.
Subsequent visits to Infants over one year of age	9,265	....
Other visits *re* Infants and Young Children	1,184	1,316
House to House Inspections	968	8,142
Reinspections	1,445	5,120
Special visits *re* Sanitary Defects	551	3,523
Visits *re* Limewashing	2,195	3,069
Primary visits to Verminous Cases	145	319
Subsequent visits to Verminous Cases	1,038	2,062
Measles Investigations	9,244	....
Subsequent visits	19,032	....
German Measles Investigations	1,168	....
Subsequent visits	1,678	....
Total visits	119,117	93,026
Number of Health Visitors at end of the year	36 (only 35 working, one ill)	27
Number of Districts worked	32 (one not worked owing to illness of Health Visitor)	24

The details of the Visits in the table are :—

House to House Inspections.

No. of Inspections	Over-crowdi'g	In Dis-repair	Dirty	Cellars Dirty	Yards Defective	Closets Defective	Defects Referred to the Sanitary Department	Defects Remedied by the Sanitary Department
968	19	206	316	7	80	76	141	180

Reinspections.

No. of Reinspections	Defects Remedied	New Complaints Referred
1445	362	74

Limewashing.

Visits *re* Lime-washing	Bed-rooms	Kitch-ens	Yards	Closets	Cellars	Coal-places	Ceilings	Stair-cases, &c.	No. of Limewash Tickets Given
2195	529	574	989	1009	133	251	525	272	1192

Child Welfare Visits other than Infants.

Other Visits *re* Infants and Young Children	Visits to Neglected Children		Visits to Sick Children other than Infants	Investigation of Deaths of Young Children from Diarrhœa	Investigation of Deaths of Young Children where an Inquest has been held
	Primary	Subsequent			
1184	75	204	738	149	18

TABLE 2.—WORK OF THE HEALTH VISITORS GIVEN IN DISTRICTS FOR 1916.*

District	Health Visitor	Qualification	No. of Births Notified or Registered	No. of Births visited†	Subsequent Visits	Older Children	Other Visits	Measles‡‡
Ancoats—West	Mrs. Lancaster	Maternity Training (L.H.V.S.)	181	183	2,921	108	676	..
,, North	Miss Linney	(L.H.V.S.)	283	300	3,286	274	363	..
,, Central	,, Grayson	Trained Nurse, C.M.B.	173	186	1,691	422	134	754‡‡
,, South	Mrs. Bostock	(L.H.V.S.)	189	199	2,526	264	905	235
,, East	Miss Sefton	,,	188	*187	2,113	741	561	515
London Road (Central)	,, Bruckshaw	Trained Nurse, C.M.B.	189	191	2,574	33	443	1,004‡‡
Deansgate (Central)	Mrs. Bishop	,, ,,	110	110	1,042	455	101	1,920‡‡
St. George's—North	Miss Dawson	(L.H.V.S.)	302	320	2,257	131	123	4
,, East	,, Comyn, 9/12	Trained Nurse	315	323	2,037	566	363	514
,, ,,	,, Bible, 2/12	San. Insp. Cert.						
,, Central	,, George	Trained Nurse	385	383	2,137	303	253	1,080‡‡
Worlton-upon-Medlock—North	,, Thompson	,, ,, C.M.B. Fever	336	334	1,354	461	365	1,282‡‡
,, South	,, Partridge	,, ,, C.M.B.	668	681	754	40	38	1,356
Hulme—Central	,, Jackson	,, ,, ,,	266	289	3,016	926	369	591
,, East	,, Roberts	,, ,,	258	249	1,698	557	243	583
,, West	,, Daly	,, ,,	397	397	1,661	379	166	1,047‡‡
,, South	,, Parry	Two years' Nursing C.M.B. San. Insp. Cert.	552	541	1,201	265	124	1,552‡‡
West Gorton	,, Wilde	Trained Nurse, C.M.B.	429	432	1,441	802	172	802
Openshaw	Mrs. Rigby, 8/12	Two years' Ch. Nursing	249	249	1,758	606	158	1,129‡‡¶
	Miss Bible, 4/12	San. Insp. Cert.						
Ardwick—North	,, Hall	Trained Nurse, C.M.B.	239	248	2,671	145	246	739‡‡
,, South	,, Brett	,, ,, ,,	229	215	1,447	836	176	27
,, East	,, Jessop	,, ,, ,,	593	661	1,632	30	116	981
Beswick	Mrs. Moore	Two years' Nursing H.V. Cert., San. Insp. Cer., C.M.B.	332	329	2,133	571	338	1,226‡‡
Miles Platting	Miss Bishop	Trained Nurse, C.M.B.	407	410	2,277	248	..	870
Monsall	,, Davies	,, ,, ,,	355	337	2,425	11	153	749
Newton Heath	,, Johnson	,, ,, ,,	389	399	1,410	..	87	1,260‡‡
Gorton	,, Young	,, ,, Fever	616	611	1,009	15	193	764
Bradford	,, Evans	H.V. Cert. and Hygiene	271	282	1,057	70	134	1,302‡‡
Harpurhey	,, Cradock	Trained Nurse, C.M.B.	391	367	982	6	84	1,299
Measles—Health Visitors, 1	Mrs. D'Orsman	,, ,, ,,	..	..	..	..	44	1,635
,, ,, ,, 2	,, Milton	,, ,, ,,	..	..	..	..	13	1,677
,, ,, ,, 3	,, Wood	,, ,,	..	..	..	..	13	1,299
,, ,, ,, 4	Miss Sizer	,, ,,	..	..	..	..	1	1,820
Special District I.	,, Warburton	,, ,, C.M.B.	285	315	4,488	..	11	152
,, ,, II.	,, Hobdey	,, ,, San. Insp.	310	363	4,115	..	3	421
		Total	9,887	10,091	61,113	9,265	7,169	30,409

*Maps exhibiting the existing arrangements for Health Visiting and the proposed arrangements have been prepared. Copies have been distributed to the Committee.

†The excess of visited Births over Notifications, etc., is due mainly to the Infants "found" throughout the year, and which were not otherwise notified here. Some may be the residue of 1915 Births visited in 1916.

‡Health Visitors paid Measles Visits in unworked Districts where the epidemic was large.

§Commenced work July and August, 1916.

¶Mrs. Rigby.

Statement of Work Done at the Child Welfare Centres during the Year 1916.

(Prepared from the Returns received from the Centres.)

	Number of Babies Weighed							Number of New Cases							Consultations							Specialists' Consultations			Treatment Cases			Massage			Visits of Superintendents of the Centres to the Homes						
	70-72, Rosamond Street	Manipur Street	Ancoats	Collyhurst Recreation Rooms	Gorton	Cheetham	Total	70-72, Rosamond Street	Manipur Street	Ancoats	Collyhurst Recreation Rooms	Gorton	Cheetham	Total	70-72, Rosamond Street	Manipur Street	Ancoats	Collyhurst Recreation Rooms	Gorton	Cheetham	Total	70-72, Rosamond Street	Manipur Street	Total	70-72, Rosamond Street	Manipur Street	Total	70-72, Rosamond Street	Manipur Street	Total	70-72, Rosamond Street	Manipur Street	Ancoats	Collyhurst Recreation Rooms	Gorton	Cheetham	Total
January	296	437	191	173	220	152	1469	39	78	24	29	22	29	221	215	274	136	127	107	101	960	63	89	152	..	128	128	..	..	..	117	58	93	108	30	62	468
February	290	496	280	201	194	76	1537	32	91	56	40	19	13	251	159	247	180	147	113	64	910	67	113	180	..	162	162	..	..	..	106	46	148	100	51	62	513
March	439	749	233	287	317	100	2125	55	123	43	53	37	7	318	250	417	174	221	170	70	1302	96	115	211	167	218	385	..	..	..	139	..	128	134	63	68	532
April	275	625	183	159	168	82	1492	28	75	33	26	12	11	185	174	386	140	114	106	60	980	53	124	177	108	208	316	..	..	..	91	..	100	85	18	..	294
May	372	557	294	219	224	154	1820	51	90	60	40	40	23	304	242	359	232	161	170	102	1266	77	89	166	166	194	360	..	..	..	164	35	127	91	..	..	417
June	488	725	295	200	242	141	2091	56	75	29	36	22	19	237	280	346	200	146	141	81	1194	91	174	265	101	185	286	..	..	..	151	49	140	114	..	..	454
July	422	518	248	267	247	188	1890	43	81	29	44	44	25	266	225	324	152	180	146	117	1144	68	100	168	59	185	244	45	44	89	61	35	49	77	55	46	323
August	641	494	365	228	352	194	2274	112	84	68	29	62	17	372	355	363	266	163	210	119	1476	118	85	203	111	165	276	30	33	63	140	71	107	88	206	95	707
September	588	786	368	404	332	199	2677	77	99	70	89	46	20	401	324	558	270	279	199	115	1745	128	150	278	157	229	386	54	58	112	102	129	74	83	186	113	687
October	617	664	336	360	333	148	2458	85	88	31	65	36	26	331	329	340	227	270	188	91	1445	127	112	239	147	220	367	30	51	81	65	88	73	73	109	100	508
November	550	683	293	297	276	181	2280	61	98	30	43	40	28	300	274	451	175	198	204	124	1426	131	126	257	136	188	324	35	43	78	75	91	51	71	83	90	461
December	443	596	245	220	290	137	1931	32	65	25	23	24	25	194	174	334	139	165	174	94	1080	120	96	216	138	130	268	48	34	82	49	86	45	62	53	90	385
Total	5421	7330	3331	3015	3195	1752	24044	671	1047	498	517	404	243	3380	3001	4399	2291	2171	1928	1138	14928	1139	1373	2512	1290	2212	3502	242	263	505	1260	688	1135	1086	854	726	5749

Table of Districts showing Proposed Rearrangements.

Districts as Worked in 1916.	Number of Births in each District at present. See Map I.	Proposed Rearrangements.	Districts as they would be worked with five additional Health Visitors.	Approximate Number of Births under proposed arrangements. See Map II.
Boats—West	181	.....	As before	..
,, North ..	283			
,, Central ..	173			
,, South ..	189			
,, East	188			
Dalton Rd.—Central.	189	.....	As before with Hulme —North	..
Deansgate—Central ..	110			
Hulme—Central ..	266	It is proposed to subdivide Hulme into six districts instead of four as at present. Hulme N. is to be worked in conjunction with Deansgate. The two districts touch.	Deansgate and Hulme —North	210
East	258		Hulme—Central ..	266
West	397		,, East	258
South	552		,, South.. ..	219
			,, South East*	266
			,, West	297
St George's—North ..	302	.....	As before	..
,, East ..	315			
,, Central..	385			
C.-on-M.—North ..	336	Proposed to make the two districts into three. C.-on-M. East is still large, but is not a poor district. It might be again subdivided and the additional Health Visitor be available for Measles during the epidemic.	C.-on-M.—North ..	222
,, South ..	668		,, South ..	226
			,, East 1	554
			,, ,, 2*	
Gorton	616	Proposed to divide this into two districts. This has been tried, but the districts are scattered and difficult to work, and would be better again divided, making three districts. (Another part of Openshaw could be added.)	Gorton	366
			Gorton—East	250
			A third Division suggested*	
West Gorton	429	These two districts to be divided into three.	West Gorton	361
Ardwick—East	593		Longsight*	275
			Ardwick—East ..	281
Ardwick—North ..	239	.....	As before	..
,, South ..	229			
Openshaw (part) ..	249	.....	As before	..
Bradford	271			
Chorlton	355			
Harpurhey	391			
Rackley	145			
Miles Platting	407	These two districts to be divided into three.	Miles Platting ..	287
Newton Heath	389		Newton	210
			,, East*.. ..	299
District I.	285	.....	As before	..
,, II.	310			

(5)—Four Health Visitors employed on Measles work and assisted almost entirely by the Health Visitor intended for C.-on-M.—East.

Total—36 Health Visitors. Total—41 Health Visitors.

* These signify additional Health Visitors.

MANCHESTER SCHOOLS FOR MOTHERS.

The fact that the number of children attending the Child Welfare Centres in 1915 was more than doubled, in 1916 meant a big increase in the work of the Schools for Mothers. New Centres, and extra consultation days at old ones, required more voluntary workers. The classes also have grown in number and popularity, and the unusual needs of the times have led to new subjects being taught as the demand arose; thus boot and shoe repairing, "handy-man," and child study classes have been added to the list, which already comprised sewing and knitting, cooking, dressmaking, nursing, and health talks.

The Didsbury School for Mothers has made good progress. Dr. Florence Robinson now takes the consultations once a fortnight, the average attendance being 18. Classes and health talks are held on the alternate weeks.

In May, 1916, an observation Nursery was opened at 5, Manipur Street, where 12 rickety and unsatisfactory children are admitted from the Centre next door, on the doctor's recommendation. The mothers pay 4d. a day, and receive instruction from the matron in any special care their children need; the steady progress and improvement in health are convincing demonstrations of the value of wise management, regular food and sleep, and fresh air. During the year 43 children passed through the nursery. Of these—

12 were sent in for special observation, and stayed less than two weeks.

1 was sent in over the mother's confinement.

21 were discharged as very satisfactory.

3 were discharged, having made some progress.

5 were sent into the Babies' Hospital.

1 was sent into Booth Hall.

The success of this experiment encouraged the Schools for Mothers to open a similar Nursery in connection with the Collyhurst Centre.

Dental Clinic.—The theory that the presence of bad teeth in the mother's mouth has a direct effect on her power of satisfactory breast-feeding led the Schools for Mothers to open a Dental Clinic at the Rosamond Street Centre,

mothers from other centres being sent there when necessary. Extractions only are done at present, and it is too early to judge results. In the first seven weeks 29 mothers received treatment.

Cheap Milk.—When the price of milk rose to 6d. a quart the Schools for Mothers arranged for those members whose income fell below the Corporation Free Treatment Scale to have milk at 4d. a quart when ordered by the doctor at the centres. The difference between this and the dairyman's price is paid for out of a special fund for the purpose. Tickets for the week's milk are bought at the centres, and thus regularity of supply and of attendance at the weighings is ensured. About 140 babies receive milk each week on these terms, and it may also be ordered for Nursing Mothers when necessary.

Holiday Home.—By an arrangement with the Collyhurst Recreation Rooms Committee the Schools for Mothers can send mothers and children to their Cottage at Mellor, six women and six children being taken at a time. This has proved most valuable where a change of air has been advised, and the Home was full throughout the summer months.

TABLE SHOWING THE AGES OF CHILDREN ATTENDING CONSULTATIONS AT CHILD WELFARE CENTRES IN 1916.

Centre	0–1 yr.	1–2 yrs.	2–3 yrs.	3–4 yrs.	4–5 yrs.	Totals
Ancoats	377	167	24	11	4	583
Openshaw	719	204	107	61	45	1136
Rosamond Street ..	508	204	46	30	19	807
Collyhurst	413	127	43	14	12	609
Gorton	344	99	25	9	5	482
Cheetham	189	85	25	13	7	319
Totals..	2550	886	270	138	92	3936

H. K. ARMITAGE.

THE NOTIFICATION OF TUBERCULOSIS.

In considering the history of the notification of Tuberculosis in 1916 we must have regard to the mortality from this disease, since notification is liable to fluctuate from causes having little relation to incidence. We have reason to think that the Medical Practitioners of the City are exerting themselves to obtain notification of cases at an early stage, and gratefully acknowledge their assistance. But, for this very reason, before considering the figures for notification we must consider the deaths.

As mentioned in the Annual Report for 1915, we have had to use for our comparisons the number of deaths occurring at 13 groups of ages in lieu of death-rates. When we construct tables showing the number of deaths in groups of ages from 1905 to 1916 for Pulmonary Tuberculosis, other forms of Tuberculosis, Bronchitis, and Pneumonia we find that—

(*a*) As regards Pulmonary Tuberculosis, the number of deaths is above the average for the previous ten years at all ages, especially of female deaths.

The number of female deaths in 1916 is practically the same as in 1915, while the number of male deaths is considerably smaller.

The largest diminution of male deaths in 1916 occurs at ages 25–34 and 35–44. At 55 and upwards there is an increase. There is also a slight increase below 20 years of age.

Amongst women, also, there is an increase at ages above 45; but a decrease at ages below 20. From 20 to 45 there is a very slight diminution.

From other forms of Tuberculosis there is in 1916 an increase in the number of deaths as compared with the number in 1915, both among males and females. This is most marked in males at ages 1–5 and among females at ages 5–9.

Turning to the figures for Bronchitis, these also show features very similar to those noted under Pulmonary Tuberculosis.

The diminution in the total number of male deaths as compared with 1915 is still more marked than that under Pulmonary Tuberculosis. But there is no material decrease among females. In both instances the numbers are above the average for the previous ten years.

The largest diminution in the number of male deaths occurs at ages 55-64. At ages 1-4 there is an increase.

Amongst females there is a diminution of mortality at ages 45-84, an increase at ages 0-4.

Last year we had to record the lowest death-rate as yet experienced from Pneumonia, the fall being large. In 1916 the fatality from this disease undergoes another large fall, both in males and females. Amongst males the diminution in fatality is very marked at ages 0–4, and there is a slighter fall at ages 25–54.

Amongst females the fall is practically confined to the ages 0–4.

We may infer that what improvement is shown in 1916 over 1915 under Tuberculosis of the Lungs is properly attributable to that disease, and is not shifted from other causes of death.

NOTIFICATION.

The number of new cases of Pulmonary Tuberculosis notified in 1916 was 2,540, of whom 322 were Poor Law cases, 808 were notified from institutions, and 1,410 were notified by practitioners. The corresponding figure in 1915 was 2,213.

The number of Poor Law notifications in 1915 was the lowest recorded, and the number in 1916 shows no marked increase. This drop is due, no doubt, to the extent to which Poor Law Hospitals are used for military purposes. On the other hand the number of cases notified by practitioners is the highest yet recorded. This fact is to be correlated with the small number of Poor Law notifications.

The number of new cases of forms of Tuberculosis other than Pulmonary notified in 1916 was 879, as compared with 826 in 1915.

There would thus appear to be a general increase in the incidence of Tuberculosis.

Table I.

Phthisis—Number of New Cases of Pulmonary Tuberculosis Notified during the Years 1900 to 1916.

Year	Poor-law Cases	Institutions	Private Practitioners	Total
1900*	578	455	540	1573
1901	625	373	341	1339
1902	667	305	303	1275
1903	556	550	251	1357
1904	512	440	250	1202
1905	527	588	291	1406
1906	565	510	304	1379
1907	634	646	310	1590
1908	659	498	346	1503
1909	681	542	384	1607
1910	543	760	356	1659
1911	517	897	423	1837
1912	488	947	969	2404
1913	345	717	1350	2412
1914	483	877	1304	2664
1915	279	740	1194	2213
1916	322	808	1410	2540
Total	8981	10653	10326	29960

* This table does not include 425 cases notified in 1899.

The increased incidence of Pulmonary Tuberculosis is notable at quite early ages, 1–5, 5–10, and 10–15. But it is spread over all the age groups. There is, probably, an increase in the actual number of cases occurring, but part of the increase may be due to greater effort in tracing cases.

The actual figures are given in Table 2.

As usual, the highest incidence was in the Manchester Township, while South Manchester shows a greater incidence than North Manchester. The highest incidence of Pulmonary Tuberculosis in any one district was in Ancoats, which also shows the highest death-rate. Other districts showing a heavy incidence are Central, St. George's, West Gorton, Chorlton-upon-Medlock, Hulme, Openshaw, Ardwick, and Beswick. The death-rates are highest in the same districts.

The relation of incidence to death-rate is much more uniform than usual, and in Withington, particularly, the rate of incidence to death-rate is nearly four to one—very different from previous records.

The average ratio over the City is nearly three to one.

The lowest death-rates from Pulmonary Tuberculosis occur in Moston, Clayton, Rusholme, and Withington; from other forms of Tuberculosis in Cheetham, Crumpsall, Clayton, Rusholme, and Withington.

TABLE 2.

NOTIFICATIONS—1916.

Periods	Notifications on Form A: Number of Primary Notifications 0–	1–	5–	10–	15–	20–	25–	35–	45–	55–	65–	Total Primary Notifications	Total Notifications on Form A	Notifications on Form B: Number of Primary Notifications Under 5	5–	10 to 15	Total Primary Notifications	Total Notifications on Form B	Notifications on Form C: Poor Law Institutions	Sanatoria
Pulmonary Males	4	58	152	106	93	101	251	327	217	115	31	1,455	1,882	..	5	2	7	9	182	760
,, Females	3	39	134	115	120	100	230	185	96	46	17	1,085	1,395	..	1	1	2	..	53	454
Non-Pulmonary Males	16	94	79	74	50	21	35	22	15	5	5	416	576	..	..	2	2	6	20	16
,, Females	8	79	93	88	74	26	41	20	18	10	6	463	599	..	2	2	4	8	30	8
Totals	31	270	458	383	337	248	557	554	346	176	59	3,419	4,452	..	8	7	15	23	285	1,238

The Public Health Work is summarised in the following Table and Statement:—

STATISTICS RELATING TO THE NOTIFICATION OF PHTHISIS.

	1916	1915	1914	1913	1912	1911	1910	1909	1901 to 1908	1899 Sep. 1 to Dec. 31 1900	Totals
ses Visited and Registered—											
Males	1526	1448	1612	1543	1354	1090	958	1034	7174	1017	14170
Females	1109	1110	1094	1052	993	717	571	567	4222	732	8854
Totals ...	2635	2558	2706	2595	2347	1807	1529	1601	11396	1749	23024
ouses Disinfected—											
1. By Corporation—											
(*a*) With solution of chlorinated lime only	635	869	994	822	884	754	665	590	4449	581	8745
(*b*) With lime solution only	0	0	0	0	0	0	0	0	17	109	126
(*c*) By Esmarch's method and solution of chlorinated lime	1878	2415	3123	3044	2842	1983	1599	1419	6345	0	17232
Totals ...	2513	3284	4117	3866	3726	2737	2264	2009	10811	690	26103
2. By Tenants— Esmarch's method	1799	3580	4564	4050	3790	3342	3127	2690	18621	1299	36919
Totals...	4312	6864	8681	7916	7516	6079	5391	4699	29432	1989	63022
pecimens of Sputum Examined:											
Positive	721	781	1052	1165	1061	851	616	531	2377	104	6705
Negative	1720	1576	2269	2637	1876	1403	1135	985	3986	154	12176
Totals ...	2441	2357	3321	3802	2937	2254	1751	1516	6363	258	18881
ases reported as sent to Hospital	2078	1719	2718	2421*	1874	1957	1772	2002	11652	991	22669
otified from common lodging-houses..	172	212	283	243	201	199	193	231	1855	187	3109
umber of cases under observation	6327	5690	5941	4848	4305	3484	3105	2869	14491	about 600	...

* This number includes all forms of Tuberculosis.

3,610 special cases have been entered in the Business Book for investigation and cleansing after removal to hospital, change of residence, death, or under special circumstances.

404 tenants have allowed the removal of bedding, etc., for disinfection ; or have themselves burned it in a few instances.

40,000 cardboard boxes have been prepared in the office and supplied to patients for spitting purposes in the home.

206 spit bottles have been supplied for use outside the house.

9,425 visits have been made by the Enquiry Officers during the year.

23,468 letters were sent out, of which 423 were to owners with reference to the disinfection of houses, with subsequent correspondence in many instances.

The fate of patients treated in the Crossley Sanatorium and Baguley Sanatorium is set forth in the following tables. Baguley Sanatorium is an institution for advanced cases, and the results are such as might be anticipated.

If patients treated in the Crossley Sanatorium do not show a higher proportion of survivors, it is to be considered that cases have not been sent to this institution at a sufficiently early stage to obtain the best results.

Table 3.

Delamere Sanatorium.

Males.

Year	No. of new cases	No. of re-admissions	Died in the Sanatorium	Died elsewhere	Lost sight of	Known to be still living, Dec. 31st, 1916
1905	16	1	..	11	4	1
1906	18	2	1	14	3	..
1907	29	2	1	20	5	3
1908	36	3	1	22	7	6
1909	27	4	2	15	7	3
1910	27	5	..	14	9	4
1911	38	2	..	20	9	9
1912	53	3	1	24	19	9
1913	151	3	..	50	38	63
1914	184	8	1	41	54	88
1915	140	10	3	18	30	89
1916	118	8	1	3	9	105
Total	837	51	11	252	194	380

TABLE 3—*continued.*

DELAMERE SANATORIUM—*continued.*

Females.

Year	No. of new cases	No. of re-admissions	Died in the Sanatorium	Died elsewhere	Lost sight of	Known to be still living, Dec. 31st, 1916
1905	14	..	1	9	1	3
1906	14	1	..	10	3	1
1907	16	2	..	14	1	1
1908	13	3	..	12	1	..
1909	16	1	..	11	..	5
1910	11	4	..	6	3	2
1911	18	2	..	9	3	6
1912	31	3	..	10	7	14
1913	67	..	..	4	29	34
1914	69	5	..	6	22	41
1915	67	5	..	3	20	44
1916	74	3	..	1	8	65
Total	410	29	1	95	98	216

TABLE 4.

BAGULEY SANATORIUM.

Males.

1912	49	..	10	21	7	11
1913	329	17	63	137	47	82
1914	246	38	45	107	27	67
1915	276	46	59	81	23	113
1916	403	73	76	28	18	281
Total	1303	174	253	374	122	554

Females.

1912	20	..	2	9	3	6
1913	167	7	31	46	39	51
1914	98	5	13	27	17	41
1915	87	5	17	17	14	39
1916	262	16	45	28	14	177
Total	634	33	108	127	87	314

The number of cases of Tuberculosis in which the income of the individual or family showed varying amounts of deficit under an assumed standard of living, and the number in which assistance was given to the individual or the family, or both, is shown in the following tables:—

Table 5.

Table Showing Particulars of Distress in Cases of Phthisis Notified during the Year 1916, Classified according to the Requirements of the Family in Excess of the Income. Food Calculated on the Atwater Scale + 25 per cent. Household Sundries Calculated on Mr. Rowntree's Scale + 50 per cent.

Shortage up to ..... in Shillings.

Conditions affecting Individual Cases	- 5	- 10	- 11	- 12	- 13	- 14	- 15	- 16	- 17	- 18	- 19	- 20	- 25	Total
Alive December 31st, 1916..	165	68	8	10	8	6	2	5	2	3	..	1	8	286
Dead December 31st, 1916..	49	43	..	1	1	2	4	1	1	..	4	..	2	108
Relief from Guardians	15	7	2	..	..	..	..	1	..	..	..	..	1	26
Assistance from £1,500	60	30	3	4	1	2	2	3	2	..	1	..	3	111
Assistance from £800	19	11	..	1	..	..	1	..	1	..	..	..	1	34

The total amounts expended during the year from the grants mentioned, viz., £1,500 contributed by the Corporation, £800 by the Insurance Committee, were for the year 1916.

The supervision of the Care Committee work is in the hands of Dr. Sutherland, as is now that appertaining to the £1,500 fund. Mr. Lock has, as usual, been unsparing of personal effort in the conduct of his work.

TABLE 6.

TUBERCULOSIS OTHER THAN PULMONARY. FROM CASES VISITED AND REGISTERED DURING 1916.

SHOWING SHORTAGE IN INCOME.

Conditions affecting Individual Cases	Under 5/-	5/-	10/-	11/-	12/-	13/-	14/-	15/-	16/-	17/-	18/-	19/-	20/-	Total
Alive December 31st, 1916	54	21	1	1	1	2	1	2	3	..	1	..	4	91
Dead December 31st, 1916	19	2	..	1	1	..	..	..	..	..	..	1	1	25
Relief from Guardians	2	..	..	..	..	1	..	..	1	..	..	..	..	4
Assistance from £1,500	9	11	..	..	..	..	..	1	..	..	..	..	1	22
Assistance from £800	..	2	..	..	..	1	..	..	..	..	..	..	..	3

THE SENIOR TUBERCULOSIS OFFICER'S REPORT.

By Dr. D. P. Sutherland.

During the past year it has only been possible to maintain the administrative and clinical work under the scheme, and the shortage of Medical Officers has prevented any extension of activities.

The whole question of further research, deliberate consideration of existing facts and figures, analysis of case papers, and all that is comprised in scientific investigation has to be left.

The staff is fully occupied in keeping the machinery going along the existing lines.

Advanced cases of Pulmonary Tuberculosis continue to form the majority of those coming forward for treatment, and the benefit that such cases can receive is limited ; whilst even after prolonged courses of treatment permanent recovery can rarely be achieved.

The attempt has been made to bring to the notice of a large section of the community those symptoms which, being possibly due to Tuberculosis, should lead them to consult a doctor. This has been done by the issue of a leaflet prepared for the Insurance Committee, who have sent it to the Societies for distribution amongst their members. At the same time a memorandum upon the Diagnosis of Tuberculosis was drawn up and sent to Medical Practitioners. In the preparation of both these documents the suggestions and assistance of the Medical and Panel Committee were freely given and greatly appreciated.

It is hoped that by these measures the earlier cases of Tuberculosis will be discovered.

At the same time the main problem will be concerned with the more advanced types of patient.

The provision for these appears to be receiving some measure of national consideration, and tentative proposals for extending the existing accommodation and providing colonies are being put forward.

Attention may be directed to the Annual Report of 1913, in which this question was discussed at some length, and to subsequent reports, where the need for ample provision for advanced cases, with power of compulsory removal and detention, were considered.

It is hoped that the so called Farm Colony will not monopolise attention to the exclusion of other forms of activity.

The population from which most of the Tuberculous patients come is not well adapted to agricultural pursuits, and the best interests of the patients will be met by work at which they are most skilled, and which, therefore, entails least fatigue and gives best results; provided always that such occupation is, or can be, rendered hygienically satisfactory; if it cannot, then and then only would a change of work be advocated.

This provides for one end of the scale where complete recovery cannot be maintained under ordinary living conditions. At the other there is the class of patient in whom complete recovery may be so frequently obtained, *i.e.*, children. Very little is being done for them, and they continue to be subjected to unnecessary dangers of infection. Provision for their treatment and the preservation of every life that can be saved is an urgent necessity for the country, and anything that can prevent future disability should receive attention at once. The nation's future depends upon the vigour and industry of the coming generation, and the productive capacity lost through the long years of invalidism accompanying Tuberculosis is a very real and serious drain upon the national resources.

The Manchester scheme as founded upon the recommendations of the Royal Commission continues to work satisfactorily. It forms a very important part—but a part only—of a system whose complete national organisation is a problem that must be faced before the 50,000 per annum mortality from Tuberculosis becomes sensibly diminished.

Together with the provisions already named, this system must include adequate housing accommodation, reasonable conditions of employment, good food, and a sufficient wage to ensure something beyond a bare subsistence. All these are essential supplementary requirements, and without them the campaign will be starved of its weapons and its success delayed and rendered incomplete.

During the year the number of insured cases applying for Sanatorium Benefit has greatly increased, but this has been amongst male patients.

The figures for the last three years are :—

1914..	730	(new applications)	Males.
	321	,,	Females.
1915..	572	,,	Males.
	315	,,	Females.
1916..	747	,,	Males.
	316	,,	Females.

The opinion was expressed in last year's report that the number of men joining the Army had caused a reduction in the applications for Benefit.

The rise in 1916 is largely due to the number of Tuberculous cases discharged from military service. There were referred by the War Office to the Insurance Commissioners during 1916 89 Manchester cases (since 1914 the total is 192), and we have dealt with others not so referred. For all these cases treatment has been arranged, and the majority have been admitted into institutions upon their discharge.

These cases present no features of difference in their stages from those coming from the civil population—they are mostly advanced—neither do they conform more readily to the necessary routine and discipline of a Sanatorium.

It would be to their advantage if the requisite institutional care could be given to them whilst in the Army rather than that they should be discharged and tempted to return to work before they are fit.

The recruiting authorities have referred a large number of cases to the dispensary, and 561 suspected or doubtful cases of Tuberculosis have been examined at their request. Of these 37 were definitely Tuberculous, and the remainder did not present any signs of that disease.

Contacts have been examined as far as the limited staff allowed, and it was only possible to see those cases in whom some degree of illness was complained of. The number so examined was 872, and of these evidence of tubercle was found in 103 and appropriate treatment provided or advised. The number of recommendations to the Insurance Committee has again increased, and is made up of 940 new and 4,057 reconsidered old cases.

In respect of the insured cases it is gratifying to note that there is a great reduction in the number of overdue domiciliary reports, both relatively and absolutely.

During the year 149 insured notified cases were found to have so far recovered that no evidence of active Tuberculosis could be demonstrated. In addition to these, 159 old cases, not under Sanatorium Benefit, were also found to be free from signs of active tubercle. All these are, therefore, to be regarded as arrested cases.

The work of the Care Committee has again been of great value. Assistance is given to the Tuberculous patient to help in maintaining improvement after institutional care and during home treatment.

Families are helped with grants of food when there is reason to apprehend danger of infection by tubercle, and instructions are given in respect of special precautions, isolation, the most economical use of food, and regulation of dietary. Advice is also given in regard to obtaining medical treatment where such appears to be indicated.

The applications for assistance are received from practitioners, patients, tuberculosis nurses, and investigation officers, and at times from other outside agencies.

No grant is made without full preliminary enquiry by specially trained Investigators as to income and family circumstances generally, and the co-operation of the Mutual Registration Council enables us to ascertain if any other agency is assisting the family and to what extent.

The grants are based upon the requirements as shown by calculations based upon Rowntree's tables. To compensate for the increased cost of living these tables have had to be modified from time to time, and during the year 1916 the requirements in respect of food and household sundries were augmented by 75 per cent.

Increased wages (which obtain in many instances) are, of course, taken into account in calculating the requirements of families.

All grants are revised at intervals not exceeding one month, and any adjustments made that are necessitated by altered circumstances.

Clothing is granted after similar enquiries to enable patients to receive full benefit from Sanatorium or Hospital treatment.

Grants of food were made in 1,938 cases to 575 patients, and clothing was supplied in 361 cases to 220 patients.

Beds and bedding have again been loaned to families to help in isolation and in obtaining more satisfactory living conditions. 35 bedsteads and cots and 31 grants of bedding constitute the total loans in this respect.

The employment of patients who have received treatment continues to receive attention, and a number of cases are specially seen with a view to advising suitable occupation. Many cases have been placed in more satisfactory work through reference to Corporation Committees, the City League of Help, and other employment centres, but the necessity already urged of a more comprehensive scheme for dealing with these patients becomes more evident year by year.

In the tables appended a detailed analysis of the work will be found.

Table A.

Summary of Cases Examined by the Senior Tuberculosis Officer and Assistant Tuberculosis Officer in 1916.

	Reason for Examination				Occupational Condition at Examination		Diagnosis																Recommendations made								
							Pulmonary Tuberculosis			Tuberculosis of																				
	Treatment	Claimed Recovery	Diagnosis	Contacts	Working (or at School)	Not Working	Stage I.	Stage II.	Stage III.	Larynx	Bones and Joints	Glands	Abdomen	Other Organs	Doubtful Tuberculosis	Bronchitis	Heart Lesions	Other Diseases	No evidence of Tuberculosis	Recovery	No Disease	Delamere and Abergele	Baguley	Hardman Street Dispensary	Union	Other Hospitals	Private Practitioners	Observation
Male ..	114	8	82	49	127	126	20	19	67	16	28	12	5	11	27	48	11	27	39	5	17	29	63	11	2	31	77	18
Females	116	20	70	133	259	80	40	39	70	8	10	17	5	1	43	57	14	37	87	12	54	27	65	45	5	27	82	22
Children	105	77	78	459	487	232	38	66	36	1	22	29	26	7	103	193	30	117	253	37	189	17	45	181	16	117	86	31
	1311				1311		* 1669													1311								

* This total is greater than that in first four columns for the reason that it represents diseases occurring amongst 1,311 patients.

TABLE B.—RESULT OF EXAMINATION OF CASES SENT FOR DIAGNOSIS.

	Pulmonary Tuberculosis			Tuberculosis of					Doubtful Tuberculosis	No evidence of Tuberculosis	Bronchitis	Heart Lesions	Other Diseases
	Stage I.	Stage II.	Stage III.	Larynx	Bones and Joints	Glands	Abdomen	Other Organs					
Males	10	17	17	4	1	6	2	0	11	12	16	4	10
Females ..	21	11	11	1	0	1	0	0	8	14	15	4	0
Children ..	9	8	3	0	4	5	2	1	5	10	14	3	3

TABLE C.—RESULT OF EXAMINATION OF CONTACTS.

Males	0	1	1	0	1	0	0	0	6	20	18	6	5
Females ..	8	4	3	0	1	1	0	0	18	57	27	9	25
Children ..	13	33	11	0	1	6	6	0	80	173	138	27	90

Table D.

Summary of Work done by the Tuberculosis Nurses, 1916.

Primary Visits	Reason for Visits						Unsatisfactory Home Conditions								Sick Contacts Referred for Examination			Deaths	Total visits
	Special Enquiry	*Re* Sanatorium Benefit	*Re* Attendance on Private Doctor	*Re* Attendance at Dispensary	Routine Visits		Careless in Disposal of Sputum	Lack of Cleanliness at Home	Overcrowding with Furniture	Bad Ventilation	Sanitary Defects	Sleeping with one person	Sleeping with more than one person	Instructions given in Cooking	Insufficient Food. Referred for Grants of Nourishment and Relief	Tubercular	Non-Tubercular	Number examined		
485	352	89	43	98	1811		51	47	17	17	18	35	36	70	130	31	61	92	65	2429
						Results of Visits.														
						Improved and Remedied.	47	35	17	17	18	Isolated. 32	34							

In addition to the details given above, 1,850 visits were paid to patients who required nursing attention and surgical dressings.

Table E.—Dispensary Return.

Number of persons, including Contacts, who were examined for the first time during the period from 1st January to 31st December, 1916, at or in connection with the Dispensary or Visiting Station, and were					Number of persons diagnosed to be suffering from Tuberculosis who were treated or supervised at or in connection with the Dispensary or Visiting Station during the period from January 1st to December 31st, 1916		Number of persons who were under treatment, supervision, or observation at or in connection with the Dispensary or Visiting Station on December 31st, 1916	
Diagnosed as suffering from Tuberculosis	Diagnosed as *not* suffering from Tuberculosis	Undiagnosed and remaining under observation	Total number examined					
			Insured	Uninsured	Insured	Uninsured	Insured	Uninsured
1282	530	160	846	1126	357	513	168	255

Table F.—Insured Cases treated in 1916.

Residential	1,218
Dispensary	357
Domiciliary	1,765
Total	3,340

Table I.—Analysis of Cases Treated.

Residential (Insured).

	Total cases treated	Discharged from Institutions		Died	* Residential treatment discontinued in other cases	Still under Residential treatment on 1st January, 1917
		Improved	Without Improvement			
	(1)	(2)	(3)	(4)	(5)	(6)
Men	861	445	75	103	11	227
Women	357	138	54	38	5	122
Totals	1218	583	129	141	16	349

* The figures in column (5) relate to cases as to the progress of which no definite report is available for various reasons—*e.g.*, the withdrawal from the Institution of the insured persons themselves before the expiration of the period for which they were nominated for the treatment.

Table II.—Analysis of Cases Treated.

Residential (Uninsured).

	Total cases treated	Discharged from Institutions		Died	*Residential treatment discontinued in other cases	Still under Residential treatment on 1st January, 1917
		Improved	Without Improvement			
	(1)	(2)	(3)	(4)	(5)	(6)
Men	48	12	4	12	...	20
Women	118	60	15	17	1	25
Children (under 16)	48	22	3	3	...	20
Totals	214	94	22	32	1	65

* The figures in column (5) relate to cases of which no definite report is available for various reasons—*e.g.*, the withdrawal from the Institution of the persons themselves before the expiration of the period for which they were nominated for the treatment.

Table III.—Analysis of Cases Treated.

Dispensary (Insured).

	Total cases treated	Discharged from Institutions		Died	* Residential treatment discontinued in other cases	Still under Dispensary treatment on 1st January, 1917
		Improved	Without Improvement			
	(1)	(2)	(3)	(4)	(5)	(6)
Men	228	63	43	7	16	99
Women	129	35	16	..	9	69
Totals.. ..	357	98	59	7	25	168 + 61 outstanding cases

* The figures in column (5) relate to cases as to the progress of which no definite report is available for various reasons—*e.g.*, the withdrawal from the Institution of the insured persons themselves before the expiration of the period for which they were nominated for the treatment.

In addition to the above figures—

273 Males.
111 Females received two weeks' Dispensary observations and treatment on leaving Institutions. Their condition was stationary during this period.
Total 384

Table IV.—Analysis of Cases Treated.

Dispensary (Uninsured).

	Total cases treated	Discharged from Institutions		Died	Still under Dispensary treatment on 1st January, 1917
		Improved	Without Improvement		
	(1)	(2)	(3)	(4)	(5)
Men	78	27	17	...	34
Women	180	64	36	...	80
Children under 16	255	85	29	...	141
Totals	513	176	82	...	255

D. P. Sutherland.

MILK SUPPLY.

No evident change occurred in the milk supply during the year 1916. There was no shortage, although the price rose, and was only prevented from rising sharply last winter by the Order of the Board of Agriculture regulating prices.

The price of cheese, however, has risen very greatly, and is now about double what it was before the War. Nevertheless there is, at the present time, a shortage of cheese, although it may be expected that precautions will be taken to prevent this from recurring next year. The great rise in the price of cheese will, of course, tend to reduce the supply of milk apart from the effect of an increased scarcity of winter feeding stuffs, and it may be necessary to take definite steps to secure an adequate supply of fresh milk and to supplement this by dried milk and by unsweetened condensed milk.

The following is the course of retail prices of milk :—

1914.—Summer, 3½d.—4d. per quart
Winter, 4d.—4½d. per quart
} Ordinary prices.

1915.—The winter prices of 1914 continued.

October, 1915.—The price rose to 5d.

November 1st, 1915.—The price rose to 6d.

Order from the Board of Agriculture November 15th, 1916, limiting the price to 6d.

February 23rd, 1917, Order by the Food Controller that the prices from April 1st to September 30th were to be not more than 2d. per quart retail in excess of the prices in the corresponding period of 1914.

Middle of March, 1917, a new Order was issued making April a winter month. Until a new Order is issued the price is 5½d.-6d. per quart.*

The rise in prices is determined not only by the price of cheese, but also by the large amount used in the manufacture of condensed milk, and it is probable that the tendency in the price to rise has not yet ceased.

The rise in prices bore very heavily on poor persons, and there can be no doubt that young children were suffering very severely, when the School for Mothers came to the rescue and determined to sell milk for children attending the Centres at 4d. a quart. This was in November, 1916.

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* The retail price at the time of going to press is 7d. per quart.

No special effort was made, nor would it have been of much avail, to procure milk of special quality for the children attending the Centres. Chemically, at all events, the milk is of good quality, and the mothers are taught at the School for Mothers how to handle it. The Health Visitors continue to instruct mothers to scald all milk to be given to young children—that is to say, to bring it to boiling point.

No special milk supply is available for any class of citizen at present, unless that produced in the City cowsheds and immediate neighbourhood be regarded as special.

The Tuberculosis free herd supplying the Hospitals had in the end of 1916 become infected, and the milk, though very rich chemically, was not satisfactory otherwise. So far as Tuberculosis is concerned, with the assistance of Major Brittlebank, A.V.C., the Tuberculosis free condition of the herd was restored. Tuberculosis of the udder was found in one of the City cowsheds, which has since been disused.

By reference to the Tuberculosis section it will be seen that the sampling of milk for Tuberculous infection has been partially resumed. The difficulties in procuring a Veterinary Officer were finally in some measure met by the courtesy of the Markets Department, who permitted the services of one of their Veterinary Assistants to be used on one day a week for visiting cowsheds and examining cows. Mr. J. F. Dixon's obliging temper and useful work deserve recognition, especially as he has resigned his off time whenever called upon. But for various reasons the work has been much interrupted, and the necessary number of visits has not been paid to the farms found to be giving Tuberculous milk.

Still a partial control has been exercised over outside farms, and out of 321 farmers' milks tested during the year no fewer than 38 were found to be infected with Tuberculosis—that is to say, 11·59 per cent.

The lowest percentage of Tuberculous samples reached was in 1909, when it was 5·79.

In 1910 it ascended abruptly, and has continued high ever since.

In the interpretation of such a table the first doubt which presents itself is whether the table represents the milk supply or the methods of the sampler. There is room for doubt whether the sampling in earlier years was sufficiently varied.

Allowing, however, for this factor, there seems to be no doubt that a genuine ascent has occurred.

If so, this ascent may have been emphasised by difficulties as regards feeding stuffs and by the selling off of young cows, but these factors are not the cause of the rise. There is no reason to suppose that the policy of keeping the herd young, so strongly advocated by our Veterinary Surgeon, suffered any reversal prior to the war ; quite the contrary. The uncertainty produced by the Order of the Board of Agriculture may have had something to do with it, relaxing the vigilance of the farmers. There is one other factor which one turns to, viz., the possibility of an unfavourable differentiation in dairy farms contracting with Manchester milk dealers as compared with London and perhaps with other localities. This is a difficult matter to settle, and one can only refer to the Annual Reports on the Health of London.

Some such factors seem most likely to furnish an explanation. Meanwhile our own control is necessarily less energetic, and this relaxation must have its effect.

As the Veterinary Surgeon has been unable to revisit the farms found to be giving Tuberculous milk, whether a cow with Tuberculous udder was or was not found on the farm, these have been referred to the Medical Officer of Health for the County in which they were situated, with all the particulars in our possession, and information has also been given to the District Medical Officer of Health. Valuable assistance has thus been obtained. On the whole it has been possible to secure supervision over the disposal of cows with Tuberculous udders. The case in which we have not been able to do all that we could have wished is where an Order has been made requiring the farmer to cease supplying milk for consumption in the City, but suspended to give the farmer an opportunity to get his farmstead put in better condition. These cases we have had to leave to the County Authorities, and it may be that they are under the same difficulties as we experience in Manchester.

In the same manner we have not been able to secure Veterinary Inspection of our own cows within the City, a duty in which difficulty was already experienced, while Major Brittlebank was in Manchester, owing to the time consumed by visits to farms outside. It will, therefore, be understood that the Veterinary Supervision was practically withdrawn in 1916. As regards sampling the supply from the Manchester farms, this is much more difficult than the sampling of supplies coming from without and arriving at Manchester railway stations. The control of internal farms practically rests on Veterinary examination of the cows.

Much remains to be done in respect of farms in the more recently added portions of the City, and experience shows that it is practically impossible to get adequate specifications carried out at present. The choice lies between shutting up the farms or insisting only on matters which can be carried out without structural alterations.

In considering what should be done the question presents itself whether there is any advantage in having milk farms in the immediate neighbourhood of the City. There can be no hesitation as to the answer. It is of the greatest advantage that milk should reach the consumer as soon as possible after milking. The supply of a large town should come as far as practicable from within its boundaries or from a limited area outside. The freshness of the milk is an important element in its value to the consumer. This must be the answer until arrangements have been made for keeping the milk in summer cooled down from milking point to the point of delivery to the householder. It is a further advantage that milk should be produced within the City, since then alone it is possible to control the conditions under which it is produced. The same advantage would rest with milk from the neighbourhood of the City if the farms were owned and equipped by the Corporation. Otherwise it must be admitted that the Sanitary Authority has less control over milk coming in by cart or car than it has over milk coming from a greater distance by rail. There remains, no doubt, the important element of freshness in such milk. But this may be delusive, since many of the farmers within the City supplement the milk supply from their own cows by milk purchased from some farm at a distance, a circumstance which complicates the control and emphasises the deficiency in our administrative machinery, especially at present.

It has been mentioned that a scarcity was experienced last winter in the milk supplied to poor children, and the Board of Agriculture, being apprehensive of scarcity in the coming winter, has made enquiries into the subject.

An estimate was made in 1902 of the milk daily consumed in the City, and the figures arrived at were :—

25,500	gallons arriving by railway.
1,000	brought in by cart.
3,000	produced within the City.
Total, 29,500	gallons.

This, of course, is exclusive of condensed and dried milk.

A fresh estimate was made by the Manchester Milk Dealers' Association in May, 1917, as follows :—

Arriving by rail	30,500	gallons.
Arriving by motor	500	,,
Produced within the City.	2,200	,,
	33,200	,,

The figure of 2,200 produced within the City is probably too small. Our own estimate is 2,800 gallons. But it is to be noted that the total estimate for 1902 refers only to the City as constituted before the inclusion of Withington, Levenshulme, and Gorton, so that the supply in 1917 is relatively smaller than in 1902.

So far as the extended City is concerned no material change has taken place within the last five years in the quantity produced within the City boundaries.

The Manchester and Salford Milk Dealers' Association estimate that in the six months ending April 30th there was a falling off in the supply estimated at 15 per cent. on recent previous years. The cause of this decline is not altogether the increased price. There has been a greatly increased demand for milk to manufacture condensed milk, and the manufacturers have a great advantage over the milk dealers in respect of transport. Probably, also, the manufacture of whole dried milk is increasing. At least it is to be hoped that such is the case. There is, also, a greatly increased demand for cheese. The anticipation of the Milk Dealers' Association that milk will be scarce next winter may, therefore, be fulfilled, unless the number of cows is increased, and the question arises how provision is to be made for young children.

The number of children under five years of age is about 80,000, and, allowing each a pint of milk a day, 10,000 gallons should suffice for their needs. This is to be regarded as a first claim on the milk supply.

The great needs of this part of the supply are that it should be produced under clean conditions and be quickly transported to the consumer without any intermediate manipulation. As it is impossible to secure freedom from Tuberculous or other infection, all children's milk should be scalded ; but this requirement cannot be ensured, and it is therefore necessary to maintain as much control over the milk as is possible under present conditions, in which there is shortage of labour on the farm, shortage of Sanitary and Veterinary staff, and shortage also in the Laboratory.

It is not easy to see how the fundamental requisites of children's milk are to be secured, viz., that it should be clean and fresh. Something might be gained by representations to milk dealers ; but, evidently, the quantity produced in the neighbourhood of Manchester does not suffice for this purpose.

There is needed a motor transport service for this purpose, a service which cannot at present be organised ; or, in lieu, there is required conveyance of refrigerated milk, and this also cannot be obtained ; but it might be possible to differentiate in favour of milk produced within a short distance of the City, and conveyed forthwith to the consumer.

The danger here is that milk from a distance may be mixed with fresh milk.

It has already been stated that structural alterations of any magnitude cannot at present be undertaken. But, of course, the local regulations can be enforced.

. There are certain requisites in the production of a clean milk which are not in general use, but which should be legally required where they are not so required already, such as the following :—

"At the time of milking the hands of the milker must be clean.

"Every cowshed to be provided with a wash basin, clean water, soap, "and clean towels, so that the milker may be able to keep his hands clean.

"Every milker to be required to wear clean overalls, kept in a suitable "place, to be worn at milking time.

"Where cows are milked within a cowshed, the cowshed to be cleaned "out from half an hour to an hour before milking time, so that dust may "settle before milking.

"The flanks and udders of cows at the time of milking must be clean.

"Milk must be received into a clean pail, which, after the completion "of milking, must be at once covered over and removed from the cowshed "to some clean place.

"All utensils connected with the handling of milk to be sterilised "before use.

"Where, owing to prospective delay between milking and transmission "to its destination, milk is cooled before dispatch, this should be done "with as little delay after milking as possible.

"In whatever manner cooling is effected, it must be carried out in "such a place and manner that the milk is not exposed to contamination "during the process.

"If milk is stored before dispatch, a dairy of suitable character and "suitably situated must be provided."

Such are, in substance, the instructions which were distributed to farmers within the City in 1916.

Were these carried out marked progress would be achieved, notwithstanding the great improvement in cleanliness which has already taken place.

But there are many impediments—defective structure, want of suitable places for can washing and milk storage, defective quality of bedding, absence of means for sterilising milk utensils, change of milkers, absence of convenience for cleansing in the cowshed, and so forth.

The question of the sterilising of milk vessels is an important one. This can only be done properly in a special can washing house or shed. This, in turn, should adjoin and be connected by pipes with a steam boiler. The actual sterilisation can be effected either by means of a steam jet or of a special trough, in which water can be raised by steam to boiling point, large enough to allow the largest milk churns to be turned in the water.

After sterilising, the vessels are to be placed upside down, preferably with their lids on, on a clean drip rack, or they may be suspended so that dust cannot enter.

These ought, therefore, to be the minimal requirements of the present time, questions of structure being, for the most part, left in abeyance. But these requirements should as far as practicable be carried out.

A number of them have not, hitherto, appeared in any regulations, and difficulty is, therefore, experienced in exacting them.

Supposing these requirements fulfilled, we are still left with the question of Tuberculous infection. It has been already mentioned that, especially with a deficient staff, there is more difficulty in controlling our own herds than there is in controlling those from which milk is sent by rail. This applies also to milk sent in by motor or milk cart.

Having regard to the fact that home supplies are often supplemented, it is necessary to visit individual farms and take average samples from the herds. This is a very time-consuming business, and we have no power to do this on farms adjoining the City. In sampling, also, time is consumed in catching individual milk carts, and in the result it is probable that the milk produced at home is not so well looked after as that which comes from a distance. It is difficult to see what is to be the remedy for this anomaly. It might be possible to require all milk carts to meet at a rendezvous in various districts at a particular hour : say in Blackley, Moston, Newton, Gorton, Levenshulme, Withington, and Chorlton-cum-Hardy, so that the milks could be sampled in sufficient numbers. But this could not be done without a special regulation. Outside farms could then be required to attend at one of these rendezvous.

The year 1916 witnessed three movements in Manchester for the improvement of the milk supply. Late in 1915 and early in 1916 a movement was initiated by Councillor Ernest Simon for a cleaner milk supply. Mr. Simon

had been to see the farm of Mr. W. J. Buckley, of Basingstoke, who is much impressed with the Score Card system adopted in America for the inspection of farms, and also with the system of grading and certifying milks, whereby a pure supply is obtained for children. There appears to be no doubt that the highest grade of milk obtained in America is better than any milk supplied here.

On January 26th, 1916, a Sub-Committee of the Sanitary Committee was appointed to consider the proposals put forward by the National Clean Milk Society, and Mr. Simon was appointed Chairman. Interviews were held with the Manchester and Salford Milk Dealers' Association on the subject, and also with Professor Delepine and Mr. James Sadler, Secretary to the Cheshire Milk Producers' Association. Mr. Buckley was invited to expound his views in Manchester, and gave a very interesting address.

The two points which he chiefly urged were :—

1. Inspection of farms on the Score Card system, which, by way of competition, he believes to have a levelling up effect on the farmer.

2. The grading of milk supplies, so that young children may have the benefit of a certified milk supply. Under the Milk and Dairies' Act provision is made whereby the Local Government may authorise the use in connection with the sale of milk of the designation "certified milk," and prescribe the conditions thereto applying. It is to be hoped that this regulation may come into effect.

The Manchester and Salford Milk Dealers' Association were favourable to the Score Card system of inspection, but doubtful of the possibility of grading milk.

Professor Delepine was consulted chiefly on the proper basis for a proposed form of contract with farmers supplying milk to the Corporation and to milk dealers. He stated that experiments carried out by him had shown that milk of a high standard of bacteriological purity could, with certain precautions, be obtained which would keep for a sufficient length of time. It was thereupon resolved that he should be asked to make further investigations into the quality of the milk sold in Manchester and report on the whole subject, also upon certain investigations which he was having carried out on the production of an improved quality of milk.

A preliminary report has been received, and it is expected that his complete statement will shortly be forthcoming, which will no doubt serve as the basis for further efforts.

While this is so, it remains that the inspection of the farms producing milk within the City is not sufficiently systematic, and it is now suggested that

inspection should, when possible, be extended and systematised by requiring, in addition to the very full statements which have been prepared by Inspectors Greenup and Sayle, systematic records by the District Inspectors of a brief character, which might well be made on the Score Card or some equivalent system. This would deal only with cleanliness in the production of milk.

The third impulse came from the Royal Agricultural Society's Show, which was held in Manchester last year. The prizes given by the Society entailed a good deal of work, and yielded interesting results as regards the quality of milk produced by the competitors, which was notably in advance of the average quality of Manchester milk. But they gave little indication of the conditions under which the normal supply rests.

While on this subject it may be mentioned that we have been steadily carrying out a systematic examination of milks coming into Manchester, so far as concerns their nutritive values. The tests have been made by Mr. R. M. Rowe, of the Sanitary Department, and the results are interesting. They relate to the period February 1st, 1916, to January 31st, 1917, and comprise 984 samples characteristic of the milk supply of the City.

The method adopted has been to take the specific gravity with a hydrometer, estimate the fat by means of a centrifugal machine, and from these figures calculate the solids, not fat, by the formula

$$\text{Sp. gr.} - 1{,}000 + \frac{\text{per cent. fat}}{4} = \text{solids not fat.}$$

The accuracy of the hydrometer was checked on several occasions by direct weighing in a specific gravity bottle, and the centrifugal results by the Werner Schmidt method. The results agree closely, except that with milks abnormally high in fat the results are somewhat on the low side :—

Fat per cent.	Solids not fat per cent.	Total solids per cent.
3·586	8·736	12·322.

A comparison is given between the figures obtained in the Royal Agricultural Society's Competition from May 22nd to June 22nd, 1916, from 144 samples from 67 competitors and 76 samples from milkshops during the same period :—

Milks	Fat per cent.	Solids not fat per cent.	Total solids per cent.
Royal Agricultural Show Competition	3·65	9·03	12·68
Milkshops	3·27	8·84	12·11

SAMPLES FROM MONSALL HOSPITAL AND BAGULEY SANATORIUM.

Number of Samples	Fat (average)	Solids not fat	Total Solids
68	4·070	8·925	12·995

There are two milk Inspectors appointed to inspect the dairies and milkshops in Manchester, who divide the City into north and south. Their function is to inspect all new milkshops applying for registration, to find out unregistered milkshops, to make a report on each of them, and to see that the regulations are complied with in their districts. The greater amount of the milk used in the City is supplied from small milkshops, containing a miscellany of articles, mostly groceries. It is almost impossible, in many of them, to avoid some accumulation and scattering of dust. The milk is kept on the counter, usually in a bowl, which in general there is no effort to keep cool. It is, however, kept covered by a clean board or by muslin weighted. The utensils are cleaned at the domestic scullery sink, and are then stood upside down on a rack or on the counter of the shop, which is kept clean for the purpose. When pressed in the matter of cleanliness, the shopkeepers inform us that the worst offenders are the customers, who bring unclean jugs which have contained beer or other articles, and their services have been enlisted to prevent these occurrences as far as practicable. It is much to be desired that the sale of milk should be restricted to certain shops, in connection with which provision is made for the cleaning and suitable storage of utensils.

A struggle took place when the Sanitary Committee decided that milk should not be sold from premises occupied by greengrocers. But, finally, this decision has prevailed. It is, however, a small part of what is needed, as there are many other milkshops of an unsuitable character.

Such is the primary function of these two Inspectors, and they have only been put to the inspection of cowsheds in default of Veterinary inspection. Nevertheless they have done much useful work, although, as already stated, it is found that we cannot at present get structural specifications carried out. At the same time it is desirable that such specifications shall be proceeded with, and issued, so that they can be proceeded with when the staff is reconstituted.

Much assistance in connection with farms has also been given by Inspector Higginbotham and Mr. Irvine.

The observations made above may be summarised as follows :—

1. The milk sold in Manchester is of fairly high chemical quality.

2. Though much cleaner in appearance than it was 20 years ago, it is still, on the average, far from clean, and therefore far from fresh in so far as the essential feature of freshness is concerned.

3. There is much Tuberculous infection in the milk at present, which has extended into the Manchester cowsheds.

4. Clean fresh milk is of vital importance to young children.

5. A further effort should be made even at present to secure the production of clean milk within the City.

6. There is defective control to some extent of the quality of milk coming into the City by rail as regards Tuberculosis, and serious loss of control as regards milk produced within and in the neighbourhood of Manchester.

7. Such milk, however, has the important quality of freshness, and therefore an effort should be made to secure its effectual control.

8. The milkshops are still very defective in their arrangements, though a gradual improvement is manifest, due chiefly to the enterprise of the larger milk contractors in establishing milkshops for the sale of milk by retail.

9. It is worthy of consideration whether the Corporation could not themselves produce milk in and near Manchester for the use of young children.

Appended are particulars of the action taken in 1916 under the Manchester Milk Clauses for the safeguarding of milk from Tuberculosis.

From Table I. it will be seen that, notwithstanding numerous difficulties in the way of such examinations, 321 samples of farmers' milk were examined, of which 11·83 were shown to contain the infection of Tuberculosis. This is somewhat lower than in 1915, but is still very high. As already explained, the action taken in connection with Tuberculous milk has been crippled by shortage of staff. It is also possible, on other grounds, that the proportion of Tuberculous milks may have been higher than the figures indicate.

While acknowledging our indebtedness to the Markets Committee, who have allowed us the services of Mr. J. F. Dixon during one day in the week, unless some pressing need for his services in their department supervenes, it must be recognised that much more could be accomplished if we had the whole time of a Veterinary Surgeon engaged on this work.

Table I.

Year	Number of farmers' milk tested during the year	Total number found to cause Tuberculosis in the experimental animal	Percentage of farmers sending Tuberculous milk	Percentage of farmers from EACH COUNTY whose milk was found to cause Tuberculosis					
				Cheshire	Derbyshire	Staffordshire	Shropshire	Lancashire	Yorkshire
1901	272	27	9·90	10·46	9·23	8·00	10·00	...	...
1902	345	36	10·49	12·72	8·65	4·01	...	8·31	...
1903	329	45	13·60	14·76	9·58	15·15	40·00	...	...
1904	318	29	9·10	11·17	6·02	...	...	7·14	25·00
1905	565	47	8·30	10·26	6·00	6·38	...	2·98	12·50
1906	542	42	7·70	8·60	6·50	9·30	12·50	4·00	...
1907	562	38	6·76	7·71	4·48	6·94	12·50	3·70	...
1908	289	27	9·34	11·56	6·25	7·70	...	2·94	12·50
1909	535	31	5·79	4·80	7·47	8·57	11·11	3·33	...
1910	468	30	6·41	6·20	8·69	5·55	...	...	...
1911	494	51	10·32	11·11	2·50	12·12	10·00	12·20	50·00
1912	484	54	11·15	13·94	4·00	10·20	33·33	6·00	10·00
1913	486	60	12·51	13·99	11·58	9·26	33·33	5·88	20·00
1914	352	34	9·66	12·39	8·19	...	...	2·77	...
1915	69	9	13·04	16·21	...	...	...	13·63	...
1916	321	38	11·83	11·59	8·80	13·04	...	6·97	...
Total..	6431	598	9·29	—	—	—	—	—	—

Tuberculous Milk.

During the year 386 samples of milk have been collected by the Food and Drugs Inspectors in connection with Tuberculosis. Of this number, 354 were collected at the railway stations, and the remaining 32 from carts coming in by road. The number of farmers represented in the total is 321.

Of these 321 farmers, 207 reside in Cheshire, and 24 of them (11·59 per cent.) sent Tuberculous milk; 45 live in Derbyshire, and 4 of them (8·8 per cent.) sent Tuberculous milk; 23 live in Staffordshire, and 3 of them (13·04 per cent.) sent Tuberculous milk; 43 live in Lancashire, and 3 of them (6·97 per cent.) sent Tuberculous milk; 3 live in Yorkshire, Westmoreland, and Cumberland, and none of them sent Tuberculous milk.

The usual table showing the percentage of farmers found sending Tuberculous milk from 1901 onwards is inserted, being completed to the end of the year 1916.

The following table of samples submitted in connection with the Manchester Milk Clauses summarises the work of the year :—

TABLE II. 1916.

Number of specimens of mixed milk taken at the station	354			
Number of specimens of mixed milk elsewhere	32			
Number of each found to contain Tubercular infection	Station	30	Elsewhere 8	In addition, 17 control samples were taken at the stations and elsewhere, of which none were proved capable of causing Tuberculosis.
Number of farms visited in consequence	30			Also two visited as result of notification. Total visits 32.
Number of specimens taken from individual cows as result of following up station and other samples	81			
Number of milks from individual cows proved to be tuberculous out of those given in the preceding column	18			
Number of udders proved to contain Tuberculous lesions	18			
Number of milks taken from individual cows as the result of *notification* or *otherwise* than owing to the presence of tubercle bacilli in mixed milk	2			
Number of udders in last column shown to be Tuberculous by bacteriological examination	...			
Total number of specimens submitted for examination	486			

From particulars supplied by farmers, 195 of whom replied to our queries, we find that on these farms there were 4,217 cows, or an average of 21·62 cows per farm.

INSPECTION OF MILKSHOPS.

The daily milk supply of the people of Manchester is obtained to a large extent from small retail shops, which are often overstocked with other goods, such as groceries, hardware, sweets, tobacco, and so forth. The work of inspection was carried out by Inspectors Greenup and Sayle, and supervised by Dr. McClure.

The work carried out is summarised thus :—

Milk—1916.

Number on Register	2,726
Number of Inspections	5,002
Number Unregistered	160
Number found without Indicator over door	114
Dirty Premises	220
Premises in disrepair	49
Number of Letters *re* Greengroceries sent	12
Number of Shops with Vessels uncovered	59
Number of Applications for Registration	407
Cautionary Letters	5
Number of Prosecutions	14

Ice-Cream—1916.

Number on Register	488
Number of Inspections	1,648
Dirty Premises	54
Dirty Clothing	20
Vessels uncovered	30
Premises in disrepair	22

STABLES AND STABLE MANURE.

It is at the present time an accepted article of faith that Epidemic Diarrhœa is to a very large extent spread by the housefly. It follows that every effort must be made to reduce the numbers of the housefly. It was shown in Manchester by actual capture and enumeration of flies that the summer plague of flies pursues a course closely agreeing with that of the incidence of summer Diarrhœa; and not much observation is required to prove that houseflies are laid, hatched, grown, and brought to completion chiefly in collections of horse manure, if these are allowed to remain long enough. Hence to keep down houseflies two chief lines of action are indicated, viz., to have all collections of horse manure carefully collected at intervals not exceeding a week, and removed to a distance from the City ; the other to destroy houseflies in every possible way. The latter is but a poor means to depress the numbers compared with the former.

In carrying out this policy we have been brought much into touch with stables, many of which are badly constructed, a nuisance in themselves, and injurious to the horses occupying them. Our efforts to remove horse manure effectually have, therefore, gone hand in hand with an effort to improve the condition of stables. This work was originally under Mr. (now Major) Brittlebank, A.V.C. After his departure Dr. McClure, in conjunction with the Sanitary Department, carried on his efforts to improve the condition of stables—a troublesome piece of work—until the work was practically suspended by the Sanitary Committee.

But the effort to keep down houseflies by the effectual removal of horse manure is maintained.

The work done in connection with stables is shown in the following tables prepared by Inspector Walton :—

TABLE I.

STABLE REPORTS.

January 1st to December 31st, 1916.

Number of stables reported by the Inspectors	66
Number visited by the Medical Officer of Health	28
Number not visited	34
Number disused as stables and for which no notice has been served	4
Number of notices served to repair stables and to reconstruct middensteads	24
Work done	4
In progress	5
Not done	—
Standing over	7
Number discontinuing keeping animals rather than comply with notice to repair	8
Number of notices served to discontinue keeping animals	4
Number standing over	3
Complied with	1
Number of Prosecutions for non-compliance with by-laws for removal of manure	7
Number of notices served under Section 91 of the Public Health Act, 1875, for removal of manure, etc.	60
Number of Prosecutions	5
Notices complied with	60
Number of notices served under Section 49 of the Public Health Act, 1875, for removal of manure—manure removed	21

TABLE 2.

STABLE PREMISES REPORTED.

YEAR	Inspectors' Reports made to Medical Officer of Health	Stables Reported by the Medical Officer of Health to be Unfit for the Purpose	To Repair by Instructions of Medical Officer of Health	Closed	Repaired	Not Complied With	In Abeyance	Total Dealt With
1909	8	2	6	2	6	..	..	8
1910	174	14	160	14	156	4	..	174
1911	176	9	167	9	159	8	..	176
1912	203	23	180	23	155	25	..	203
1913	132	14	118	14	86	32	..	132
1914	120	8	24	8	24	..	88	120
1915	93	17	16	..	16	17	60	93
1916	66	4	24	1	12	15	34	66
	972	91	695	71	614	101	182	972

As regards the removal of Manure, a reference to the summary of work done by Inspector Higginbotham under "Fly Nuisance" will show the kind and amount of special work carried out by him. On the whole, notwithstanding the shortage of men, this necessary procedure has been maintained. But, especially in 1915, much additional effort was required in doing so.

Two of the three Special Inspectors carrying out work—specially directed by the Medical Officer of Health—are now in the Army, and Mr. Higginbotham's activities are consequently directed into various channels according to current exigencies.

On the Housefly, etc.

Assuming that Epidemic Enteritis (or Summer Diarrhœa) acquires its epidemic character by transmission through the housefly, it becomes a matter of cardinal importance to diminish the number of houseflies. It appeared from previous inquiries that the incidences of this disease did not repeat themselves in the same locality, but were varied in time and place, the variation depending in all probability on the production of broods of flies now here now there, now at one part of the warm season now at another.

On this hypothesis, the object to be aimed at is to prevent such an accumulation of the materials on which the housefly lays its eggs, and in which the larvæ can grow and pupate. Such materials comprise (1) accumulations of human fæces. Such accumulations are now comparatively rare, and the number of houseflies has in this way been diminished, especially of the smaller housefly.

(2) Accumulations of vegetable refuse. These can only serve as breeding grounds in weather sufficiently warm to allow of all the changes taking place without internal fermentation of the accumulation. Their effect is therefore limited in its duration. Such as it is, the prevention of this cause of the multiplication of flies is largely in the hands of the Markets Department.

(3) Certain collections of animal origin.

(4) But undoubtedly the overwhelming majority of houseflies are produced in accumulations of horse manure, which by their fermentation produce the heat, and which contain the moisture necessary to enable the eggs rapidly to turn into flies.

If therefore collections of horse manure were stored in suitable receptacles with impervious bottoms and sides and suitable covers, and were entirely removed outside the City at intervals not exceeding a week, the plague of houseflies would be reduced to much smaller proportions.

But that would not entirely do away with the nuisance arising from stables, which are not seldom an annoyance to people living in the districts in which they are situated, but from their defective sanitary conditions must be hurtful to the horses in them.

There is an idea that stables should be dark, and that horses then rest much better. Surely this is quite wrong. All places inhabited by animals should be well lighted, so as to facilitate their being kept clean. If horses work during the day, night brings the needful darkness. If they work during the night, light is still needed to cleanse the stables, and the windows can be darkened during the day.

Horses, like human beings, need plenty of light in their habitations, abundance of fresh air, floors which can be kept clean, and proper drainage.

Accordingly, for a number of years a systematic effort has been made to bring about an improvement in their condition.

Reports prepared in the Sanitary Department have been referred to the Assistant Medical Officers. Dr. McClure* or Dr. Young* have then determined

* Now absent on military service.

which of these require to be dealt with, the Medical Officer of Health also occasionally visiting them, and on their instructions specifications have been prepared and issued from the Sanitary Department as notices.

As part of this work the manure receptacles have also been altered, the plan of a model manurestead being provided by the Office. In the case of small stables galvanised iron bins with covers have been used.

In 1915, owing to various causes, it became very difficult to proceed with these alterations, and the Sanitary Committee, accompanied by the Medical Officer of Health, visited a number of stables, and also had an interview with property owners. The Committee determined that for the present these alterations should not be insisted upon except where the conditions were extremely bad.

But this resolution applied only to the stables themselves and not to the storage of manure, and was conditional on the stables being kept in a clean state.

The preceding return by Inspector Walton shows the work carried out in successive years.

The storage of manure is much more intimately connected with the production of flies than the condition of the stables, and to this question much attention was given in 1915 and also in 1916.

Every means was tried through the Cleansing Department and through private contractors to assist stable proprietors in getting manure removed.

Prosecutions were instituted for failure to comply with the Bye-laws, then the Public Health Act, Section 49 was used, the Cleansing Department first, and afterwards private contractors, undertaking to remove the manure in respect of which an Order had been issued.

These procedures, one after the other, broke down owing to the failure of means of conveyance.

Finally the stable owners themselves were obliged, under Section 91 of the Public Health Act, to see to the removal of manure regularly. See details in the summary by Inspector Higginbotham, page 109.

This year, so far, owing to the demand for manure, much less difficulty has been experienced. But the stress will come at harvest time, and it will then be necessary to use every available means to secure regular removal of the manure.

Where the middensteads are constructed of bricks without a continuous facing the horsekeeper must be compelled to provide suitable means of storage. But whether it will be possible to enforce systematic removal of manure remains to be seen.

It may be admitted that in one way or another a fair measure of success attended our efforts to get manure promptly removed in 1916. But the great importance of this matter is not yet sufficiently realised by any section of the community.

Having regard to the difficulty in securing adequate alterations on premises, and also to administrative difficulties, the Sanitary Committee have ordered the distribution of 50,000 copies of each of two handbills dealing with diarrhœa and stable manure.

Public Health Office,
Civic Buildings, Manchester.

To the Medical Officer of Health.

Report on Work Done in connection with the Removal of Horse Manure from Stables during 1916.

Inspector Higginbotham reports that the policy of endeavouring to secure prompt and regular removal of horse manure from the City stables to some place outside the City was continued as in previous years. Great difficulty was experienced in securing removal in many cases owing to lack of labour. The Cleansing Department in 1915 promised to remove manure from stables where 24 hours' notice had been given under the Public Health Act, 1875, but it was not found possible for them to continue such removal owing to shortage of labour.

Arrangements were then entered into with private manure removal contractors who agreed to the conditions laid down by the Medical Officer of Health, viz., that the manure must be removed at an appointed hour on any given date.

Each district Sanitary Inspector was supplied with a duplicate book (pocket size) of notices under Section 49 Public Health Act, 1875, so that a notice could be served immediately an accumulation of manure was found.

A considerable number of these notices were served, which had the desired effect of securing the removal of the manure without resorting to compulsory removal, except in a few cases. There were several cases where owing to the character of the manure the contractor was not recompensed for his outlay. The contractors also experienced great difficulty in securing suitable men who could be depended upon to carry out their work in the thorough manner essential in the removal. Many horse owners had to remove their own manure to the Corporation depots. Generally speaking, the removal of manure from the City stables was carried out as efficiently as in previout years.

J. Higginbotham.

SUMMARY OF WORK DONE FOR THE MEDICAL OFFICER OF HEALTH.

By Inspector Higginbotham.

At this point it is convenient to give a summary of this work, to which reference has already been made.

Public Health Office,
Civic Buildings, Manchester.

To the Medical Officer of Health.

Annual Return of Work Done by Inspector Higginbotham for 1916.

Inspections and reinspections of Food Contractors to H.M. Forces, 1,153.
Total number of Food Contractors in City, 182.
Total number of Foods supplied, 38.
New Contractors during the year, 25.

Specifications issued for work required, 31; work completed, 22; specifications outstanding and in progress, 9.

Letters sent for work required, 2; work completed, 2; outstanding, none.

Other notices issued for work required, 3; work completed, 3; outstanding, none.

Unsound Food found: Bacon, 6; bread filling for sausages, dirty, 2; condensed milk, 1; filling of dirty bottles with sauce, 5 cases.

Unsound Foods have been referred to Markets Department, and dealt with by them; consignment about 40 tons.

Interviews with Medical Officer of Health *re* Food supplied to H.M. Forces, 51.

Interviews with Housing Department *re* Specifications, 10.

Re *Tubercular Milk Supply.*

Farm Inspections outside City, 25; sketch plans and reports in duplicate, 25.

Interviews with Medical Officer of Health *re* same, 25; visits to Joddrell Street Office *re* samples, 25.

Interviews with Mr. J. F. Dixon, Veterinary Surgeon, 25; interviews with Mr. Lock, 13.

City Farm Inspections, 12; sketch plans and reports in duplicate, 4; interviews with Medical Officer of Health *re* same, 3.

Enquiry into Clean Milk Supply and methods in use of estimating quantity of Dirt in Milk:—

Visits, 13; interviews with Medical Officers of Health *re* same, 6.

Inspections of Stables re *Fly Nuisance.*

Inspection of Stables and Manure Heaps, 540; notices served, 6; notices complied with, 6.

Preparing Fly Maps of Sanitary Districts, 16 and 28.

Interviews *re* removal of Manure with Medical Officer of Health, 22.

Interviews *re* removal of Manure with Mr. Dale, 5.

Interviews *re* removal of Manure with Mr. Williamson, 3.

Interviews *re* removal of Manure with Contractors, 26.

Experiments with Fly-destroying Fluid, 4.

Miscellaneous Reports.

Inspections and visits, 45; interviews with Medical Officer of Health *re* same, 23.

Report on sanitary condition of Military Hospital, 1.

Collection of Anthrax infected Shaving Brushes: visits, 17; interviews with Medical Officer of Health. 4; brushes destroyed, 107 gross.

Enteric Fever.

Inspection and enquiry, 1.

Samples of mussels for examination, 12. Comparison between Conway and other mussels.

J. HIGGINBOTHAM.

WORK IN CONNECTION WITH FOOD SUPPLIED BY CONTRACTORS TO H.M. FORCES.

Lists of such contractors are received from Dr. Alex. MacFadden, C.B., and the firms are thereupon visited, specifications being issued from the Sanitary Department for alterations when required.

In the first instance the premises were visited by the Medical Officer of Health or Dr. McClure, mostly the latter. From their reports specifications were drawn up by Mr. Irvine, and the completion of the specifications was looked after by Inspector Higginbotham and Mr. Irvine. In all cases, however, the completed work was inspected by the Medical Officer of Health or Dr. McClure.

Unquestionably a most useful control of the food supply was thus maintained, and it may be anticipated that on the conclusion of the war this procedure will be extended to the preparation and storage of foodstuffs generally.

The summary (see page 109) by Inspector Higginbotham gives but a faint idea of the amount of work entailed in carrying out this supervision, which was often considerable.

Sanitary Department,
Civic Buildings,
Manchester,
July 26th, 1917.

Report on the Inspection of Military Billets and Sleeping Quarters in Manchester.

Inspector PRIESTLEY reports :—

During the period from January 1st, 1916, to December 31st, 1916, 234 new billets, accommodating 949 soldiers, have been inspected.

Regiment	No. of Billets	No. of Men Accommodated
East Lancashire Divisional Cyclists' Co.	66	291
Military Foot Police	26	148
Duke of Lancaster's Own Yeomanry	32	132
Manchester Regiment	32	114
Royal Army Medical Corps	19	88
Royal Flying Corps	24	81
Royal Garrison and Field Artillery..	14	43
7th Lancashire Fusiliers	5	15
Army Service Corps	7	13
5th South Lancashire Regiment	3	7
26th Middlesex Regiment	1	6
Royal Engineers	3	5
Army Pay Corps..	1	4
3/5th King's Liverpool Regiment	1	2
	234	949

The Police made the preliminary arrangements in connection with 132 of these billets, the arrangements in the remaining 102 being made by the Military Regimental Commanders.

The billets were notified by the Military Authorities and the Police to the Medical Officer of Health for his opinion as to the sanitary condition and fitness, in accordance with the instructions of the Army Council. Where sanitary defects, overcrowding, dirty conditions, or nuisances were found to exist, remedial measures were immediately adopted.

Regular and frequent reinspections of the premises have also been made.

I. PRIESTLEY,
Sanitary Inspector.

Annual Report of the Medical Officer of Health for the year 1916, for the County Borough of Manchester, on the administration of the Factory and Workshop Act, 1901, in connection with

FACTORIES, WORKSHOPS, WORKPLACES, AND HOMEWORK.

1.—INSPECTION OF FACTORIES, WORKSHOPS, AND WORKPLACES.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises	Number of		
	Inspections	Written Notices	Prosecutions
Factories (including Factory Laundries)... ...			
Workshops (including Workshop Laundries)...	14708	176	1
Workplaces (other than Outworkers' premises included in Part 3 of this Report)			
Total	14708	176	1

2.—Defects found in Factories, Workshops, and Workplaces.

Particulars	Number of Defects			No. of Prosecutions
	Found	Remedied	Referred to H.M. Inspector	
*Nuisances under the Public Health Acts :—**				
Want of cleanliness	689	689	...	...
Want of ventilation	1	1	...	...
Overcrowding	...	...	...	...
Want of drainage of floors	1	1	...	...
Other nuisances	174	168	...	1
Sanitary accommodation—				
Insufficient	27	9	...	...
Unsuitable or defective...	117	81	...	...
Not separate for sexes	11	6	...	...
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (S. 101)	...	...	...	...
Breach of special sanitary requirements for bakehouses (SS. 97 to 100) ...	295	295	...	...
Other offences (excluding offences relating to outwork which are included in Part 3 of this Report)	192	160	...	...
Means of escape in case of fire (insufficient)	...	...	...	...
Total	1507	1410	...	1

* Including those specified in sections 2, 3, 7, and 8 of the Factory and Workshop Act as remediable under the Public Health Acts.

4.—Registered Workshops.

Workshops on the Register (S. 131) at the end of the year		Number
Important classes of workshops, such as workshop bakehouses, may be enumerated here.	Workshops	3824
	Bakehouses	635
	Total number of Workshops on Register ...	4459

5.—Other Matters.

Class	Number
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133)	181
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5)—	
Notified by H.M. Inspector	78
Reports (of action taken) sent to H.M. Inspector	78
Other	419
Underground Bakehouses (S. 101) :—	
Certificates granted during the year	...
In use at the end of the year	31
Not in use at the end of the year	18
Demolished	1

Note.—The Factory and Workshop Act, 1901 (S. 132), requires the Medical Officer of Health in his Annual Report to the District Council to report specifically on the administration of that Act in workshops and workplaces, and to send a copy of his Annual Report, or so much of it as deals with this subject, to the Secretary of State (Home Office). If the Annual Report is presented otherwise than in print, it is unnecessary to include in the copy sent to the Home Office the portions which do not relate to factories, workshops, workplaces, or homework. The duties of Local Authorities and the Medical Officer of Health under the Act of 1901 are detailed in the Home Office Memorandum of December, 1904. A further Memorandum, on the Home Work Provisions of the Factory Act, was issued to all District Councils and Medical Officers of Health in October, 1906.

I append a brief Statement on the Memorandum of the Home Office upon the Structural requirements of the Factory and Workshop Acts, as

1. Means of escape from fire :

Bye-laws have been in operation since 1908. These have been amended, and in their amended form were approved by the Local Government Board in 1913.

A large amount of work has been done under these bye-laws, and practically the whole of the factories and workshops have been dealt with.

2. Sanitary accommodation :

Although the work has not been carried out under the Sanitary Accommodation Order, 1903, the conditions stated in the Memorandum have been enforced, and all the factories and workshops have been dealt with, although changes are constantly occurring.

3.—HOME WORK.

NATURE OF WORK *	Outworkers' Lists, Section 107.									Outwork in Unwholesome Premises, Section 108			Outwork in Infected Premises, Sections 109, 110		
	Lists received from Employers						Notices served on Occupiers as to keeping or sending lists	Prosecutions							
	Sending twice in the year			Sending once in the year											
	Lists †	Outworkers †		Lists	Outworkers			Failing to keep or permit inspection of lists	Failing to send lists	Instances	Notices served	Prosecutions	Instances	Order made (S. 110)	Prosecutions (Sections 109, 110)
		Contractors	Workmen		Contractors	Workmen									
Wearing Apparel—							A notification sent with a blank list to each Employer twice a year								
(1) Making, etc.	900	578	5701	35	10	75		..	3	..	..	..	..	..	..
(2) Cleaning and washing	2	2	..	..	..	..		..	..	..	..	..	..	..	..
Household linen	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Lace, lace curtains, and nets	2	..	12	..	..	..		..	..	..	..	..	..	..	..
Curtains and furniture hangings	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Furniture and upholstery	8	11	11	..	..	..		..	..	..	..	..	..	..	..
Electro-plate	..	..	..	..	..	..		..	..	..	..	..	..	..	..
File making	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Brass and brass articles	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Harness	4	..	25	..	..	..		..	..	..	..	..	..	..	..
Cables and chains	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Anchors and grapnels	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Cart gear	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Locks, latches, and keys	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Umbrellas, etc.	38	2	363	..	..	..		..	..	..	..	..	..	..	..
Artificial flowers	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Nets, other than wire nets	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Tents	4	..	14	..	..	..		..	..	..	..	..	..	..	..
Tents	12	..	66	..	..	..		..	..	..	..	..	..	..	..
Feather beaters	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Paper, etc., boxes, paper bags	6	..	20	..	..	..		..	..	..	..	..	..	..	..
Window blinds	2	..	2	..	..	..		..	..	..	..	..	..	..	..
Sponges	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Chair pads	2	..	3	..	..	..		..	..	..	..	..	..	..	..
Carding, etc., of buttons, etc.	2	..	8	..	..	..		..	..	..	..	..	..	..	..
Opticians	2	2	..	..	..	..		..	..	..	..	..	..	..	..
Handkerchief hemmers	42	3	369	..	..	..		..	..	..	..	..	..	..	..
Chocolates and sweetmeats	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Stuffed toys	..	..	..	..	..	..		..	..	..	..	..	..	..	..
Total	1026	598	6594	35	10	75		..	3	..	..	..	..	..	..

* If an occupier gives out work of more than one of the classes specified in column 1, and subdivides his list in such a way as to show the number of workers in each class of work, the list should be included among those in column 2 (or 5 as the case may be) against the principal class *only*, but the outworkers should be assigned in columns 3 and 4 (or 6 and 7) into their respective classes. A footnote should be added to show that this has been done.

† The figures required in columns 2, 3, and 4 are the *total* number of the lists received from those employers who comply strictly with the statutory duty of sending *two* lists each year of the entries of names of outworkers in those lists. The entries in column 2 must necessarily be *even* numbers, as there will be two lists for each employer—in some previous returns odd numbers have been inserted. The figures in columns 3 and 4 will usually be (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name will often be repeated.

‡ [illegible] visits were paid to houses of outworkers during the year.

HOUSING.

Little was done in 1916 in the way of condemning and altering houses, partly because all the houses available in the poorer quarters are urgently needed, partly because of the difficulty of obtaining labour and the high cost of alterations.

The figures are summarised below.

The number of houses certified to, and dealt with, by the Housing Committee from February, 1885, to December 31st, 1916: —

	Number Certified and ordered to be Closed	Number of Houses added together or to other Houses	Number Demolished	Number Repaired and Re-opened	Number Closed	Number not Closed	Number which stand Adjourned
Totals.. ..	27280	3401	6725	13243	1344	2441	126

The extent to which these operations have been reduced is seen from the corresponding figures relating to 1916:—

Totals.. ..	227	..	..	4	2	142	72

The number of conversions from pail-closets and midden privies to water-closets is given herewith:—

From April 1st, 1903, to March 31st, 1916	75,118
From April 1st, 1915, to March 31st, 1916	169

The numbers still requiring to be replaced are—middens, 48; pail-closets, 1,454.

THE FOLLOWING TABLE SHOWS THE RESULTS OF INSPECTION OF HOUSES REPORTED TO THE HOUSING SUB-COMMITTEE AS UNFIT FOR HUMAN HABITATION DURING THE YEAR 1916.

Number	of Dwelling-houses inspected for all purposes	47,276
„	considered by the District Inspector of Nuisances unfit for human habitation	227
„	of representations made by the Sanitary Superintendent under a Local Act	227
„	of Closing Orders made	148
„	of Dwelling-houses the consideration of which stand adjourned	79
„	put in a fit state for human habitation after Closing Order had been made	4

General character of defects stated to exist :—

Ventilation defective	43
Light defective	32
Closet accommodation defective	88
External disrepair	137
Internal disrepair	124
Drainage defective	36
*Dampness	68
Water supply defective	2
Dirty—always immediately cleansed	16
Arrangement for deposit of refuse defective	66
Yards require paving	21
Passages require paving	—

The number of new houses certified during the year 1915–1916 is 119, as compared with 410 in 1914–15, 748 in 1914, 997 in 1913, and 1,072 in 1912.

In neighbouring areas the total number is only 52, whilst in 1915 it was 238.

MONSALL HOSPITAL.

REPORT BY DR. JAMES FLETCHER, Medical Superintendent.

REPORT FOR 1916.

The number of patients admitted was 2,032, a decrease of 1,246 on the preceding year. Included in this number were 153 soldiers.

The average daily number of patients in hospital was 298·3, as against 441·6 in 1915.

The average length of stay in hospital for all patients who recovered was 54·1 days ; for fatal cases, 11·8.

* All insanitary houses are more or less damp, since there is no damp-proof course in the older houses.

The average daily number of resident officers, nurses, and servants was 171.

The fatality rate for all cases was 6·6 per cent., as against 7·6 in 1915. Forty, or more than a quarter, of the deaths occurred within 48 hours of admission.

The health of the staff during the year was fairly good. Six Nurses contracted Scarlet Fever; one Nurse Diphtheria; two Nurses Mumps. All, however, made good recoveries.

Five Sisters left for Military nursing.

Seventeen Probationers left during or at the end of their trial months; 41 finished their training, 18 of whom proceeded to a General Hospital.

SCARLET FEVER.

The number of patients admitted was 952, which is 1,351 less than in 1915.

The type of disease, generally speaking, was mild; 32 deaths occurred, giving a fatality rate of 2·8 per cent., as against 3·2 in 1915. The rate was higher in females than in males.

Five patients died within 48 hours of admission.

The average stay in hospital for patients who recovered was 62·5 days; for fatal cases, 21·4.

POST-SCARLATINAL DIPHTHERIA AND DIPHTHERIA "CARRIERS."

Four patients developed an attack of Post-Scarlatinal Diphtheria, all of whom recovered.

A culture was taken from the nose and throat of each Scarlet Fever patient on admission, with the result that 16 per cent. of the patients were found to be harbouring a bacillus corresponding morphologically with the Diphtheria Bacillus. The bacillus was found in the nose in 13, the throat in 2, and the nose and throat in 1 per cent. of the cases.

"Return" Cases.

The number of alleged infecting cases, which gave rise to 24 secondary cases, out of a total of 1,138 discharges, was 20. This gives a "return" case rate of 1·7 per cent., as against 2·3 in 1915.

If the interval which elapsed between the arrival home of the infecting patient and the onset of the "return" case be limited to a month, the rate becomes 1·6 per cent., as against 2·1 in 1915.

The average number of days ill of the infecting cases was 63·3, and the average interval, in days, between the return home of the patient and the onset of the "return" case 12·4, the extremes being 3 and 55.

Eleven of the 20 infecting patients had uncomplicated attacks.

DIPHTHERIA.

Four hundred and ninety-one patients were admitted, being 109 more than in 1915. Thirty-five of the admissions were "carriers," and are not included in the calculated death-rate.

Fifty-two deaths occurred, giving a fatality rate of 11·3 per cent., as against 16·9 in 1915. The rate was higher in males than in females.

Twenty of the deaths took place within 48 hours of admission, and in 5 cases a concurrent attack of Measles and in 1 Scarlet Fever was a contributory cause of death.

The larynx was found to be involved on admission in 28·6 per cent. of the cases.

Tracheotomy was performed on 65 patients, of whom 16 died, giving a fatality rate of 24·6 per cent. Of the deaths, 7 occurred within 48 hours of admission, and in 2 cases Measles was co-existent.

A serum rash was noted in 25 per cent. of those injected.

The average stay in hospital for patients who recovered was 59·6 days; for fatal cases, 10.

ENTERIC FEVER.

The number of admissions was 59, or 80 less than in 1915.

Fifteen patients died, giving a fatality rate of 21·1 per cent., as against 22·1 in 1915. The rate was very much higher in females than in males.

Two deaths occurred within 48 hours of admission.

The average stay in hospital for patients who recovered was 62 days; for fatal cases, 10·4.

Before discharge from hospital the stools and urine of all patients were submitted to bacteriological examination to ascertain the absence of the Typhoid Bacillus. Of 56 cases, 50 gave negative results and 6 positive, the urine being positive in 5 instances and the stools in 1.

ERYSIPELAS.

The admissions numbered 124, a decrease of 12 on the previous year.

Five deaths occurred, giving a fatality rate of 4 per cent., as against 10·4 in 1915.

The average stay in hospital for patients who recovered was 23·4 days; for fatal cases, 17·4.

PUERPERAL FEVER.

Sixty-two patients were admitted, a decrease of 3 on 1915.

The infant was in 29 instances admitted with the mother.

Eighteen patients died, giving a fatality rate of 27·6 per cent. Four deaths took place within 48 hours of admission.

The average number of days ill on admission for cases which recovered was 6·2; for fatal cases, 5·4.

The average stay in hospital for patients who recovered was 49·1 days; for fatal cases, 8·7.

CEREBRO-SPINAL FEVER.

Ten patients were admitted, of whom 2 recovered, 7 died, and 1 remained in hospital at end of year, giving a fatality rate of 77·7 per cent. Four deaths occurred within 48 hours of admission.

OTHER DISEASES.

In this class are included patients whose illness was incorrectly diagnosed, certain cases of non-notifiable disease, and infants admitted with their mother.

Twenty-two deaths occurred, giving a fatality rate of 6·7 per cent. Five deaths took place within 48 hours of admission.

The average stay in hospital for patients who recovered was 25·2 days; for fatal cases, 7·8.

LABORATORY REPORT.

All the necessary media were prepared by the Dispenser at the hospital. The number of Bacteriological examinations performed was as follows :—

Cultures from Nose, Throat, and Ear	9,106
,, Pharynx	1
,, Uterus	63
,, Vagina	1
Widal reactions	117
Para-typhoid A reactions	21
,, B ,,	22
Bac. Enteritidis ,,	43
Typhoid Stools	121
,, Urine	128
Examination of Spinal fluid	44
,, fluid from knee	1
,, Pus	12
,, Sputum	6
,, Hairs	18
	9,704

Statistical Report for the Year 1916.

Remaining in hospital on January 1st, 1916	452
Patients admitted during 1916	2,032
	2,484
Recovered and died during 1916	2,260
Remaining in hospital on December 31st, 1916	224
	2,484
Total number of deaths during 1916	151
Net mortality	6·6%
Of the deaths, 72 occurred within 48 hours of admission	26·5%
Daily average number of patients	298·3
,, ,, officers, nurses, and servants	171
Average stay of recovered patients (in days)	54·1
,, ,, fatal cases	11·8

Table showing Monthly Distribution of Diseases throughout the Year.

Discharges and Deaths.

1916	Scarlatina	Diphtheria	Enteric Fever	Erysipelas	Puerperal Fever	Cerebro-Spinal Fever	Other Diseases	Total
January ..	141	34	13	7	5	2	23	225
February ..	117	52	4	10	7	..	18	208
March	130	43	11	10	5	..	19	218
April	116	56	5	12	11	..	47	247
May	93	40	8	11	9	..	41	202
June	96	32	7	11	4	..	37	187
July	97	47	4	7	8	1	32	196
August	60	34	5	12	5	1	26	143
September ..	98	43	6	9	2	4	34	196
October	75	28	2	3	1	1	15	125
November ..	71	30	3	15	5	..	19	143
December ..	77	54	3	16	3	..	17	170
Total ..	*1171	†493	71	123	65	9	328	2260

* Of these, 1 had Scarlatina and Varicella
„ 8 „ „ „ Pertussis
„ 13 „ „ „ Diphtheria
„ 4 „ „ „ Ringworm
„ 7 „ „ „ Scabies
„ 1 „ „ „ Measles

† Of these, 6 had Diphtheria and Scarlet Fever
„ 5 „ „ „ Measles
„ 2 „ „ „ Varicella
„ 3 „ „ „ Pertussis
„ 3 „ „ „ Ringworm
„ 3 „ „ „ Scabies

} Co-existent.

Table showing Numbers of Various Diseases treated.

Disease	Remaining in Hospital, Jan. 1st, 1916	Admitted during 1916	Discharges and Deaths during 1916	Remaining in Hospital, Dec. 31st, 1916
Scarlatina	331	952	1171	112
Diphtheria	81	491	493	79
Enteric Fever.....	21	59	71	9
Erysipelas	8	124	123	9
Puerperal Fever.....	9	62	65	6
Cerebro-Spinal Fever	0	10	9	1
Other Diseases	2	334	328	8
Total.....	452	2032	2260	224

Case Mortality Per Cent.

Year	Scarlatina	Diphtheria	Enteric Fever	Puerperal Fever	All diseases
1903	4·7	18·4	19·2	22·2	8·5
1904	3·3	16·3	14·1	50·0	6·5
1905	3·6	19·9	15·1	24·4	8·4
1906	4·5	19·3	18·1	24·4	8·2
1907	4·5	17·2	10·2	24·4	7·4
1908	3·8	19·5	16·8	20·3	7·5
1909	5·7	18·3	16·9	27·0	8 8
1910	3·3	17·8	16·3	19·7	7·7
1911	2·6	19·3	14·5	15·2	6·6
1912	3·1	21·0	20·8	15·9	7·7
1913	2·9	16·0	15·6	20·0	6·7
1914	3·8	16·1	18·8	20·0	7·5
1915	3·2	16·9	22·1	25·4	7·6
1916	2·8	11·3	21·1	27·6	6·6

Scarlatina.

Age of Patients	MALE			FEMALE			TOTAL		
	Cases	Died		Cases	Died		Cases	Died	
Under one year ...	8	1		7	1		15	2	
1 to 2 years ...	20	2		24	3		44	5	
2 to 3 ,, ...	42	2		39	5		81	7	
3 to 4 ,, ...	45	2		47	1		92	3	
4 to 5 ,, ...	64	...		63	5		127	5	
5 to 10 ,, ...	217	3		232	4		449	7	
10 to 15 ,, ...	108	1		95	...		203	1	
15 to 20 ,, ...	31	...		35	2		66	2	
20 to 25 ,, ...	19	...		22	...		41	...	
25 to 30 ,, ...	13	...		13	...		26	...	
30 and over ...	15	...		12	...		27	...	
			Mortality per cent.			Mortality per cent.			Mortality per cent
Total	582	11	1·9	589	21	3·6	1171	32	2·8

Five deaths occurred within 48 hours of admission.

Complications in Scarlet Fever.

Complication	Number	Percentage
Rhinorrhœa in Convalescence..	205	17·5
Otorrhœa	130	11·1
Nephritis	38	3·2
Albuminuria of Convalescence..	85	7·2
Adenitis and Abscess	17	1·4
Onychia	26	2·2
Relapse	7	0·6
Pneumonia	6	0·5
Arthritis	15	1·3
Vaginitis	2	0·2
Endocarditis	2	0·2
Mastoid Abscess	4	0·4

Scarlatina—*continued*

Year	No. of Scarlatinal Discharges and Deaths	No. of Cases of Post Scarlatinal Diphtheria	Case Percentage	Died
1901	2669	104	3·90	3
1902	2018	29	1·43	1
1903	1877	8	0·42	2
1904	1560	7	0·45	0
1905	1499	13	0·90	0
1906	1897	10	0·53	1
1907	1548	1	0·06	0
1908	1763	2	0·11	0
1909	1960	1	0·05	0
1910	1573	4	0·25	0
1911	1243	2	0·16	0
1912	1401	7	0·49	0
1913	2186	5	0·22	1
1914	2622	6	0·22	0
1915	2318	6	0·26	0
1916	1171	4	0·34	0

Diphtheria.

Age of Patients	MALE			FEMALE			TOTAL		
	Cases	Died		Cases	Died		Cases	Died	
Under 1 year ...	6	3		4	...		10	3	
1 to 2 years ...	23	5		14	4		37	9	
2 ,, 3 ,, ..	25	2		25	2		50	4	
3 ,, 4 ,, ...	26	5		18	1		44	6	
4 ,, 5 ,, ...	31	5		23	5		54	10	
5 ,, 10 ,, ...	64	8		76	10		140	18	
10 ,, 15 ,, ...	20	...		33	1		53	1	
15 ,, 20 ,, ...	5	...		21	...		26	...	
20 ,, 25 ,, ...	8	1		11	...		19	1	
25 ,, 30 ,, ...	6	...		5	...		11	...	
30 and over ...	8	...	Mortality per cent.	6	...	Mortality per cent.	14	...	Mortality per cent.
Total	222	29	13·06	236	23	9·7	458	52	11·3

20 deaths occurred within 48 hours of admission.
Of the deaths, 6 were complicated by other co-existent diseases.

Diphtheria.

Table showing interval elapsing between Date when the Patient was first seen by a Medical Man and the Date of Admission to Hospital, also showing Day of Disease on Admission.

Days' Interval	Interval between admission and date when patient was first seen by a Medical Attendant		Day of disease on admission	Day of disease on admission	
	All Cases	Deaths		All Cases	Deaths
Sent in on the same day	123	18	Sent in on the same day	12	1
1 day interval	107	15	2nd day.....	88	8
2 days' ,, ...	68	4	3rd ,, ...	78	4
3 ,, ,, ...	55	4	4th ,, ...	70	9
4 ,, ,, ...	46	4	5th ,, ...	82	11
5 ,, ,, ...	19	6	6th ,, ...	43	9
6 ,, ,, ...	9	...	7th ,, ...	25	6
7 ,, ,, ...	9	1	8th ,, ...	15	2
8 ,, ,, ...	5	...	9th ,, ...	10	...
9 ,, ,, ...	3	...	10th ,, ...	10	1
10 ,, ,, ...	2	...	Over 10th day ...	25	1
Over 10 days' interval	12	...			
Total	458	52	Total	458	52

Complications in Diphtheria.

Complication	Number of Cases	Percentage
Otorrhœa	13	2·8
Broncho-pneumonia	13	2·8
All forms of Paralysis	46	10·0
Palate alone	31	6·7
Cardiac Paralysis	5	1·1
Other Paralysis	10	2·2

Tracheotomy Cases.

Age of Patients	No. of Patients	Died	Mortality per cent.
Under 1 year	5	3	60·0
1 to 2 years	13	4	30·7
2 ,, 3 ,, ...	15	...	...
3 ,, 4 ,, ...	14	4	28·5
4 ,, 5 ,, ...	11	4	36·3
5 ,, 10 ,, ...	6	1	16·6
10 ,, 15 ,, ...	1	...	...
Total	65	16	24·6

Of the deaths, 7 occurred within 48 hours of admission, and in 2 cases Measles was co-existent.

Enteric Fever.

Age of Patients	MALE			FEMALE			TOTAL		
	Cases	Died	Mortality percent.	Cases	Died	Mortality percent.	Cases	Died	Mortality percent.
3 to 4 years ...	...	...		1	...		1	...	
4 to 5 ,, ...	...	...		...	...		...	...	
5 to 10 ,, ...	1	...		1	1		2	1	
10 to 15 ,, ..	5	...		5	1		10	1	
15 to 20 ,, ...	6	...		4	2		10	2	
20 to 25 ,, ...	9	1		4	1		13	2	
25 to 30 ,, ...	3	...		5	1		8	1	
30 to 35 ,, ...	8	2		3	1		11	3	
35 to 40 ,, ...	6	1		1	1		7	2	
40 to 45 ,, ...	1	...		2	...		3	...	
45 to 50 ,, ...	2	2		4	1		6	3	
Total.....	41	6	14·6	30	9	30·0	71	15	21·1

Of the deaths, 2 occurred within 48 hours of admission.

Complications in Enteric Fever.

Complication	Number of Cases	Percentage	Complication	Number of Cases	Percentage
Pneumonia	2	2·8	Intestinal Hæmorrhage	2	2·8
Relapse	6	8·4			
Thrombosis.....	3	4·2	Perforation and Peritonitis	3	4·2

Enteric Fever.

Table showing Interval elapsing between Date when Patient was first seen by a Medical Man and the Date of Admission to Hospital, also showing Day of Disease on Admission.

Days' Interval	Interval between admission and date when Patient was first seen by a Medical Attendant		Day of disease on admission	Day of disease on admission	
	All Cases	Deaths		All Cases	Deaths
Sent in on same day...	1	...	1st day	...	...
1 day interval ..	1	...	2nd ,, ...	...	...
2 days' ,, ...	1	...	3rd ,, ...	..	...
3 ,, ,, ...	5	2	4th ,, ...	...	...
4 ,, ,, ...	4	...	5th ,, ...	1	1
5 ,, ,, ...	1	1	6th , ...	1	...
6 ,, ,, ...	1	...	7th ,, ...	1	1
7 ,, ,, ...	14	2	2nd week	29	4
8 ,, ,, ...	4	...	3rd ,, ...	28	7
9 ,, ,, ...	5	...	4th ,, ...	9	1
10 ,, ,, ...	4	1	5th ,, ...	2	1
Over 10 days' interval	30	9	Over 5th week ..	...	...
Total	71	15	.....	71	15

Other Diseases.

Certified as	Actual Disease	No.
Scarlatina	Tonsillitis	55
,, ...	Rubella	17
,, ...	Erythema	13
,, ...	Measles	9
,, ...	Nil	6
,, ...	Influenza	4
,, ...	Urticaria	2
,, ...	Meningitis	1
,, ...	Pneumonia.....	1
Total .....108, or 8·6% of cases discharged and died.		
Diphtheria ...	Tonsillitis	21
,, ...	Measles	3
,, ...	Laryngitis	2
,, ...	Rubella	2
,, ...	Pertussis	1
,, ...	Bronchitis	1
,, ...	Convulsions ...	1
,, ...	Syphilis	1
,, ...	Vincent's Angina	1
,, ...	Broncho-Pneumonia	1
,, ...	Post-Pharyngeal Abscess	1
Total .....35, or 6·6%		
Enteric Fever...	Pneumonia ...	5
,, ,, ...	Influenza	4
,, ,, ...	Pyæmia	2
,, ,, ...	Pneumococcal Meningitis	1
,, ,, ...	Pleurisy and Empyema	1
,, ,, ...	Otitis Media ...	1
,, ,, ...	Tubercular Peritonitis	1
,, ,, ...	Bronchitis	1
,, ,, ...	Chronic Gastritis	1
,, ,, ...	Pneumococcal Peritonitis	1
Total .... .18, or 20·2%		

Certified as	Actual Disease	No.
Erysipelas ...	Cellulitis	2
,, ...	Erythema	2
,, ...	Eczema	1
,, ...	Gluteal Abscess	1
,, ...	Scalp-Abscess...	1
,, ...	Tenonitis	1
,, ...	Sunburn.....	1
,, ...	Popliteal Abscess	1
,, ...	Broncho-Pneumonia	1
Total .....11, or 8·2%		
Puerperal Fever ...	Abortion	6
,, ...	Miscarriage ...	2
,, ...	Nil	2
,, ...	Sapræmia	2
,, ...	Acute Bronchitis	1
,, ...	Puerperal Mania	1
,, ...	Phlebitis	1
,, ...	Vomiting of Pregnancy	1
,, ..	Phlegmasia Dolens	1
Total .....17, or 20·7%		
"With Mother"		29
For Observation	Nil	19
Measles	Measles	21
,, ...	Rubella	14
,, ...	Acute Dermatitis	1
Rubella	Rubella	36
Mumps	Mumps	8
Varicella	Varicella	5
,, ...	Nil	1
Mumps	Pre-auricular Adenitis	1
Cerebro-Spinal Fever	Tuberculous Meningitis	2
,, ...	Staphylococcal Meningitis	1
,, ...	Headache	1

Total of other diseases, 328.

In the other diseases there were 22 deaths, 5 of which occurred within 48 hours of admission. Total mortality of other diseases, 6·7 per cent.

PARTICULARS OF "RETURN" CASES OF SCARLET FEVER.

Number of alleged originating cases	20
Ditto "return" cases	24
Alleged originating case percentage of Scarlet Fever patients Discharged	1·7
Alleged "return" case percentage of Scarlet Fever patients Discharged	2·1

TABLE A.

"RETURN" CASES.

SHOWING DURATION OF DISEASE OF ORIGINATING CASE.

Time	No. of Cases
5 to 6 weeks	1
6 to 7 ,,	5
7 to 8 ,,	4
8 to 9 ,,	...
9 to 10 ,,	4
10 to 11 ,,	1
11 to 12 ,,	1
Over 12 ,,	4
Total	20

TABLE B.

"RETURN" CASES.

SHOWING CONDITION OF ORIGINATING CASE BOTH ON AND AFTER DISCHARGE.

Condition on Discharge.

Nothing abnormal	18
Still Desquamating	2
	20

Condition after Discharge.

Nothing abnormal	13
Rhinorrhœa	4
"Sore" Nose	2
Otorrhœa	1
	20

Table C.

Showing Interval Elapsing between Discharge of Original Case and Onset of Secondary Cases.

Time	No. of Cases
3 and under 4 days	1
4 ,, 5 ,, ...	1
5 ,, 6 ,, ...	1
6 ,, 7 ,, ...	...
7 ,, 14 ,, ...	12
14 ,, 21 ,, ...	8
21 ,, 28 ,, ...	...
28 ,, 35 ,, ...	...
5 weeks and over.....	1
Total	24

Table D.

Showing Interval between the Discharge of the 20 alleged Originating Cases and 20 alleged Return Cases respectively, and the percentage of Scarlet Fever Patients Discharged.

Time	No. of Cases	Percentage of Scarlet Fever Patients Discharged
Up to 14 days	16	1·4
15 to 28 days..	3	0·26
Over 28 days	1	0·08
Total..	20	1·7

Note.—Where more than one case is said to have originated from a discharged case, the date is taken from the first.

BAGULEY SANATORIUM.

REPORT FOR THE YEAR ENDING DECEMBER 31ST, 1916.

Remaining in hospital, January 1st, 1916	170
Admitted during the year	753
Total treated	923
Total discharged	471
Total deaths	168

The death-rate per cent. during the year was 18·2.

The death-rate per cent. during the previous year was 12·8.

The average stay per patient was 111·3 days.

The average stay per patient during previous year was 109·8 days.

TABLE A.

	Number in Hospital	Admitted	Discharged	Died	Remaining
January 1st	170	63	18	11	204
February 1st	204	53	21	10	226
March 1st	226	74	20	14	266
April 1st	266	68	38	16	280
May 1st	280	58	45	18	275
June 1st	275	90	48	14	303
July 1st	303	57	45	11	304
August 1st	304	60	44	17	303
September 1st ..	303	47	35	16	299
October 1st	299	57	48	11	297
November 1st ..	297	80	65	17	295
December 1st	295	46	44	13	284
Total for Year ..	..	753	471	168	..

Table B shows the working capacity of all patients at the time of discharge :—

TABLE B.

Working Capacity on Discharge.

Full	27
Good	52
Fair	143
Poor	56
Nil	193
Total	471

During the year the new Wards were opened, and these provided 100 beds for men and 60 for women.

The total accommodation of the Hospital is now 188 beds for men and 130 for women.

The new Wards are very much appreciated by the patients during the summer, but in the winter they are most unsuitable for the type of case we get at Baguley.

The wind carries rain and snow into the wards ; the patients get wet in going to the lavatories ; the food cannot be served hot owing to the long distances from the kitchen ; and the nurses get wet and cannot keep warm whilst going about their duties.

On a cold windy day it is absolutely impossible to heat these wards, as the rate of exchange of the air is many times greater than that of radiation.

A corridor ought to be provided on the north side of the buildings in order to prevent all this discomfort.

The type of case admitted to Baguley during the year is on the average very much worse than the previous year.

This is to some extent due to the admission of men from the Army who have broken down on active service.

Some of the men from the Army have undoubtedly had the resisting power of their lungs weakened by an attack of "Gas Poisoning."

The treatment of such advanced cases as we get at Baguley is a constant source of discouragement and disappointment.

Such a large establishment—filled with patients suffering from a chronic disease, and each having his own particular crotchet—with only one Assistant to help, absolutely prohibits anything being done in the way of research or special treatment for individual cases.

These two things—research and special forms of treatment—are the only inducements which can be offered to medical men to come to a place like Baguley, which is to a large extent simply an Isolation Hospital.

The gardening operations which were commenced on a large scale in April have been a great success. The patients now get a great variety of green vegetables in the season, and these, being of the best quality and perfectly fresh, are a very welcome addition to the dietary.

ABERGELE SANATORIUM.

REPORT FOR THE YEAR 1916 BY C. E. WARNER,

Temporary Superintendent.

Total number of cases treated	181
Total number of admissions	125
Total number of discharges	124
Average stay of patients admitted since 1st April, 1916, and discharged before 1st April, 1917	110 days
Number of patients under 16 years	26

Daily average number of patients	55
Daily average number of staff	19
	74

	£	s.	d.
Total Expenditure, not including Interest and Sinking Fund Charges	5,782	0	8
Less Receipts	676	18	2
	5,105	2	6

	£	s.	d.
Interest and Sinking Fund Charges	1,142	17	10
Total Expenditure, including Interest and Sinking Fund Charges, but not deducting Receipts	6,924	18	6
Cost of Provisions	2,347	16	10
Cost of each patient per week, not including Interest and Sinking Fund Charges, and not deducting Receipts	2	0	5¼
Cost of each patient per week after deducting Receipts	1	15	8½
Cost of Provisions per head per week for patients and staff combined	0	12	2½
Cost of each patient per week other than food, after deducting Receipts	1	3	6
Cost of each patient per week, including Interest and Sinking Fund Charges, and not deducting Receipts	2	8	·5

Pneumo-thorax Treatment.

Treatment by artificial Pneumo-thorax was continued in a limited number of cases. In a few the treatment had to be abandoned owing to the presence of adhesions or to the disease becoming active in the other lung. The after history of 28 cases, as ascertained from the Tuberculosis Office, is as follows :— In the army, 2 ; doing well, 4 ; progress satisfactory, 7 ; progress only fair, 8 ; not satisfactory, 1 ; dead, 1 ; not traced, 5.

A stove was put into the patients' dining room in November and proved a great boon in the long and severe winter.

At Pen-y-coed heliotherapy was continued and the results were encouraging. The treatment was much facilitated by the erection of verandahs outside the ward and by the provision of special beds. In the year nine cases were discharged and all were improved except one.

In July the Farm Bailiff resigned and the Head Forester was appointed as Estate Steward. In the spring of 1917 all available land in the estate was cultivated and arrangements were made for an unbroken field to be ploughed by motor tractor.

REPORT BY MR. A. T. ROOK, SUPERINTENTENDENT OF THE SANITARY DEPARTMENT.

Sanitary Department,
Town Hall, Manchester.

In presenting to the Medical Officer of Health the report of the work transacted in the Sanitary Department for the year ending 31st March, 1916, I beg to state that the City, for inspection and other purposes, is divided into 33 Districts, to each of which one Sanitary Inspector has been assigned.

In addition to these there is a Superintendent, a Deputy Superintendent, one Chief Inspector, one Drainage, four Smoke, one Canal Boats, four Lodging-house, three Adulteration of Food, two Milkshops, ten Factory and Workshops Inspectors, including two Female Inspectors, and two Drain Examiners. There is also a staff of 30 Clerks for clerical and other work.

In the Drainage Department there is also a Manager, nine Clerks and six Clerks of Works for supervising and measuring up work done by the contractors employed by the department in carrying out private drainage work.

The number of complaints of nuisances of various kinds made during the year was 5,385 :—

2,784 through the Medical Officer of Health's Department.
2,586 by the public.
15 through the Police.

HOUSES LET IN LODGINGS.

Under the powers given by Section 90 of the Public Health Act the bye-laws made thereunder have been enforced.

The number of houses on the register is 2,032. To these 19,735 day visits and 435 night visits have been paid. 232 infringements of the regulations have been reported and dealt with.

DAIRIES, MILKSHOPS, AND COWSHEDS REGULATIONS.

Under this Order, which was made in July, 1879, and the Regulations thereunder in 1896, 2,797 milkshops and dairies and 93 cowkeepers are now on the register. The number of cows kept is 1,500. The number of visits to dairies, milkshops, and cowsheds was 6,346. Thirty-four infringements of the regulations have been reported and dealt with.

The number of ice cream manufacturers on the Register is 487. The number of visits was 1,803. Six infringements of the regulations have been reported and dealt with.

WORKSHOPS, BAKEHOUSES, SHOPS ACTS, AND ORDERS MADE THEREUNDER.

Workshop Acts

During the year the Factory and Workshop Act of 1901 has received the careful attention of the Male and Female Inspectors specially appointed for the duties, the Female Inspectors devoting a large portion of their time to visiting the 3,164 houses of outworkers in the City.

Means of Escape in case of Fire

Provision for means of escape in case of fire in factories and workshops has also received attention and all known cases of danger have been dealt with.

Periodical changes will, of course, from time to time take place in various ways which will bring buildings within the meaning of the Act, and necessitate the constant supervision of the Inspectors and action on the part of the Authorities.

Bakehouses

The number of bakehouses in the City is 587; of these 50 are situate in basement premises, and special attention has been given to them.

Shops Act

The Shops Act, which came into force on the 1st May, 1912, has received attention, registers of all shops having been prepared. Orders of Exemption from compulsory closing have been made in 33 trades. In 5 trades Orders have been made fixing the day for the weekly half-holiday, and in 3 trades Orders have been made fixing the closing hour for the several days of the week.

Outworkers

Many visits have been paid to houses in various parts of the City in which outwork is carried on, as will be seen on reference to the following tabulated statement, but constant visitation is necessary to maintain the standard of cleanliness which is to be desired, especially in houses in which shirt-making, handkerchief-hemming, brace-making, and umbrella-covering, etc., is done.

The people, as a rule, appear willing to carry out any suggestion made by the Inspectors to keep their houses clean; but at the same time it is almost impossible for small houses, sometimes containing large families, to be kept in such a satisfactory condition as workshops.

Number of District.	INSPECTOR	SHOPS				WORKSHOPS						BAKEHOUSES					OUT-WORKERS	
		Number visited	Number of infringements reported to Committee		Number on register	Number visited	Number of premises in which the Sanitary arrangements were found defective	Number of reports referred to Factory Inspector	Number of Infringements reported to Committee	Number on register	Factories and Workshops not provided with proper means of escape in case of fire	Number visited	Number of premises in which the Sanitary arrangements were found defective	Number of reports referred to Factory Inspector	Number of Infringements reported to Committee	Number on register	Number of visits to houses where outworkers are employed	Number of houses found dirty.
			Shops Act	Employment of Children Act														
1	(*a*) Leonard Illingworth	639	4	5	...	490	42	23	...	453	...	44	5	...	...	47	...	...
2	(*b*) Richard Tolson	1075	9	8	...	2656	226	156	1	450	58	119	10	...	...	27	4	1
3	Alfred Campbell	1637	16	17	...	2543	210	107	2	245	39	243	27	18	...	70	...	...
4	Thomas Nicholson	2899	8	13	...	2013	191	123	3	476	13	272	48	12	...	74	4	...
5	(*c*) Thomas A. Linfoot	827	6	1	...	147	6	3	...	337	...	80	7	...	...	93	...	...
6	George Vernon	1943	4	14	...	2133	181	81	...	533	15	391	57	1	...	132	...	...
7	(*d*) Ernest Dooley	1219	4	3	...	2079	106	49	...	556	13	421	34	...	...	111	...	...
8	Francis J. Rowe	1237	10	6	...	2953	255	132	2	924	19	264	16	4	...	33	...	...
...	Mrs. Rosa G. Clift	849	...	...	...	1194	50	3	3	...	...	...	...	...	...	...	4895	51
...	Miss Emma Coppock and Miss Ethel Harrison	625	...	...	...	758	13	1	...	...	...	...	...	...	...	...	1435	31
	TOTALS	12950	61	67	21801	16966	1280	678	11	3974	157	1834	204	35	...	587	6338	83

(*a*) Engaged on Sanitary District Work since June 21st, 1915.

(*b*) Joined H.M. Forces January 20th, 1916.

(*c*) Engaged on Sanitary District Work since June 21st, 1915—Joined H.M. Forces February 28th, 1916.

(*d*) Joined H.M. Forces January 29th, 1916.

The work done under the above Acts is shown in the following tables:—

SHOWING THE NUMBER AND CLASSIFICATION OF PERSONS EMPLOYED AS OUTWORKERS BY FIRMS WITHIN THE CITY, AND THE NUMBER OF SUCH FIRMS.

TRADES	No. of Employers	No. of Outworkers or Contractors employed
Makers of Wearing Apparel	475	3014
Button Carding	1	5
Cabinet Makers and Upholsterers	4	15
Cleaning and Washing	1	1
Fent Sorters	2	8
Fur Workers	2	12
Hair Pad and Frame Makers	1	1
Handkerchief Hemmers	21	216
Lace, Lace Curtains, and Nets	2	6
Opticians	1	1
Paper Bags and Box Makers...	3	11
Quilt, Cushion, &c., Makers	7	31
Umbrella Trimmers...	20	192
Window Blinds	1	1
Totals	541	*3514

*3164 of these are in the City, the remainder are in the districts of other Local Authorities, to whom lists showing the names and addresses have been sent.

WING THE PROCEEDINGS TAKEN UNDER THE PROVISIONS OF THE ADULTERATION OF FOOD AND DRUGS AND THE MARGARINE ACTS.

Article	Number of Samples Obtained	Number Adulterated	Number not Adulterated	Number Summoned before Magistrates	Number Fined	Number Ordered to Pay Costs only	Number Dismissed or Withdrawn	Amount of Fines Imposed £ s. d.	Amount of Costs Ordered to be Paid £ s. d.
vroot and Corn Flour	8	...	8	...	...	...	...	.....	.....
g Powder.....	17	...	17	...	...	...	...	.....	.....
.....	61	...	61	...	...	...	...	.....	.....
.....	39	...	39	...	...	...	...	.....	.....
r	435	4	431	2	2	...	...	70 0 0	1 1 0
horated Oil	8	...	8	...	...	...	...	.....	.....
r Oil	10	...	10	...	...	...	...	.....	.....
se	40	...	40	...	...	...	...	.....	.....
.....	46	...	46	...	...	...	...	.....	.....
Liver Oil	10	...	10	...	...	...	...	.....	.....
e	107	...	107	...	...	...	...	.....	.....
ctionery and Mincemeat ...	67	...	67	...	...	...	...	.....	.....
n and Preserved Cream	81	...	81	...	...	...	...	.....	.....
s	97	...	97	...	...	...	...	.....	.....
(tinned and prepared)	2	...	2	...	...	...	...	.....	.....
.....	36	...	36	...	...	...	...	.....	.....
....	34	...	34	...	...	...	...	.....	.....
up and Sauces.....	8	...	8	...	...	...	...	.....	.....
.....	74	...	74	...	...	...	...	.....	.....
arine	44	...	44	...	...	...	...	.....	.....
(tinned and prepared)	21	...	21	...	...	...	...	.....	.....
.....	1277	62	1215	61	41	11	9	94 18 0	58 11 9
(skimmed).....	3	...	3	...	...	...	...	.....	.....
(condensed)	1	...	1	...	...	...	...	.....	.....
ral Waters, Cordials, &c. ...	36	...	36	...	...	...	...	.....	.....
ard.....	19	...	19	...	...	...	...	.....	.....
eal.....	30	...	30	...	...	...	...	.....	.....
Oil	5	...	5	...	...	...	...	.....	.....
Barley	4	...	4	...	...	...	...	.....	.....
er	28	...	28	...	...	...	...	.....	.....
es	6	...	6	...	...	...	...	.....	.....
Tapioca, &c.....	41	...	41	...	...	...	...	.....	.....
....	1	...	1	...	...	...	...	.....	.....
ps.....	3	...	3	...	...	...	...	.....	.....
s	15	...	15	...	...	...	...	.....	.....
s	208	...	208	...	...	...	...	.....	.....
.....	13	1	12	...	...	...	...	.....	.....
.....	70	...	70	...	...	...	...	.....	.....
le and Golden Syrup.....	10	...	10	...	...	...	...	.....	.....
gar	9	...	9	...	...	...	...	.....	.....
s	12	...	12	...	...	...	...	.....	.....
otals	3036	*67	2969	63	43	11	9	164 18 0	59 12 9

* In 4 of these cases no Magisterial proceedings were taken, 2 samples of Butter, 1 sample of Milk, and 1 sample of Sugar being taken informally.

In addition to the above, 186 samples of Milk have been procured from Farmers' cans by the Sampling Officers for bacteriological examination under the Milk Clauses of the Manchester General Powers Acts, and 120 samples of Milk were taken in connection with the Milk Competitions arranged by the Royal Agricultural Society at the Manchester Show, June 27th, 1916.

Fertilizers and Feeding Stuffs Act, 1906.

enty-two samples were procured under this Act, which were submitted to Professor ine for analysis, three of which were reported on as adulterated.

SMOKE NUISANCES.

For the abatement of smoke nuisances the four Inspectors appointed specially for this work have taken 565 timed observations of half-an-hour each, with the result that 103 notices for the abatement of nuisances have been served. Proceedings before the Magistrates have been ordered in 88 cases out of 311 offences reported.

One hundred and nine were summoned before the Justices (which includes 21 cases pending from 1915), in 68 of which fines were imposed amounting to £121 10s. 6d., and costs £16 1s. 6d.

Thirty-eight orders of abatement were granted and served, and three cases were excused, dismissed, or withdrawn,.

Much attention during the past year, as will be seen by the above, has been given to the nuisance caused by the emission of black smoke, not only from the furnaces connected with boilers in mills, warehouses, and other works, but also from chemical and other industries, and the efforts made have already resulted in a considerable reduction of the nuisance.

Chimneys of firms in adjoining districts have also been observed in regard to smoke nuisances, and communications sent to the Authorities concerned.

CANAL BOATS ACTS.

The number of canal boats on the register is 416.

The number of inspections made was 2,278, resulting in twelve infringements of the Acts being discovered, which were referred to the Justices to be dealt with.

Caution notices were sent to the owners or masters of 52 boats.

OFFENSIVE TRADES.

The number of offensive trades on the register is 892. These have been placed under close supervision, and periodical visits paid.

UNHEALTHY DWELLINGS.

During the year 430 houses were certified to be dealt with by the Sanitary Committee.

Of these, 414 were ordered to be closed, and 16 were adjourned.

In the majority of these the owners arranged to make alterations to meet the requirements of the Corporation.

Prosecutions for Offences, with Results.

Description of Offence	Number of Summonses taken out	Number of Persons Fined, with Costs	Number of Persons ordered to pay Costs only	Number adjourned	Number Excused, Dismissed, or Withdrawn	Amount of Fines Imposed	Amount of Costs ordered to be Paid
						£ s. d.	£ s. d.
Did not affix notice in shop as to Assistants' Weekly Half-holiday	12	9	..	..	3	3 5 0	0 2 6
Neglecting to provide satisfactory means of escape in case of Fire after notice ..	3	3	..	..	..	5 10 0	..
Did not allow Assistants to have Half-holiday	5	3	1	..	1	1 15 0	0 6 0
Shops open in contravention to the "Closing Order"	43	41	..	..	2	18 12 6	0 13 6
Employing children under 14 years of age between 9-0 p.m. and 6-0 a.m.	48	40	2	..	6	15 2 0	4 17 0
Obstructing Inspector in the execution of his duty	1	1	..	..	..	0 10 0	..
Not having fixed in shop Abstract of Act *re* employment of young persons.. ..	1	1	..	..	..	0 5 0	..
Not forwarding lists of outworkers to the Department	2	..	2	..	..	..	0 8 0
Total..	115	98	5	..	12	44 19 6	6 7 0

PARTICULARS RELATING TO THE OPERATIONS OF THE CLEANSING DEPARTMENT.

The Medical Officer of Health is indebted to Mr. Williamson, Superintendent of the Cleansing Department, for the following particulars relating to the operations of the Cleansing Department during the year ending 31st March, 1917 :—

Cleansing Department,
Town Hall, Manchester,
September, 1917.

Dear Sir,

There are within the City 12,569 ash-boxes ; 146,246 ash-bins ; 1,406 pail-closets ; 4,230 midden-privies ; 66 wet middens ; 1,435 dry middens ; 168,302 water-closets at dwelling-houses ; and 40 cesspools. The pail-closets are systematically emptied at regular intervals—once, twice, or thrice weekly, as necessity demands. The middens are emptied as required. The contents of the pail-closets are taken to Holt Town and Water Street. At Holt Town the fæcal matter is dried into concentrated manure. The dry refuse is consumed in the Galloway boilers, and generates the steam required for working the machinery. The worthless fine ash, which cannot be consumed, is deposited at the nearest tip at Clayton Vale. The privy refuse and fæcal matter, taken to Water Street, is sent away in its crude state as nightsoil to Carrington and Chat Moss Estates. Dry combustible matter is passed into the destructor furnaces or the Galloway boilers at Water Street, and there destroyed. A quantity of fine ash at Water Street is used as an absorbent for the fæcal matter from the pail-closets.

The market garbage, of which we have 4,054 tons per annum, is carted to Water Street, and destroyed in the furnaces or sent to the Committee's Estates. Slaughter-house refuse is collected from the abattoirs and private slaughter-houses and sent to Holt Town, where it is passed through dryers, and the dry material is then added to the concentrated manure. Street sweepings are generally deposited at the nearest depot, and afterwards carted to Water Street Depot and Ardwick Sidings, from whence they are despatched to farmers or to the Committee's Estates.

The total quantity of material collected by this Department during the past year amounted to 303,366 tons.

Within the City there are 42 destructor furnaces and 21 boilers, and last year 4,971 tons of mortar were made from the clinker obtained from such furnaces.

During the year 50,404 barrels of water were used in degging the streets.

During the past 25 years we have deposited upon various tips within the City the following quantities of material, viz. :—In 1892, 99,866 tons ; 1893, 109,078 tons ; 1894, 103,949 tons ; 1895, 113,836 tons ; 1896, 107,883 tons ; 1897, 99,658 tons ; 1898, 96,635 tons ; 1899, 104,481 tons ; 1900, 95,138 tons ; 1901, 64,781 tons ; 1902, 117,619 tons ; 1903, 180,985 tons ; 1904, 141,999 tons ; 1905, 118,093 tons ; 1906, 109,446 tons ; 1907, 134,072 tons ; 1908, 120,581 tons ; 1909, 123,183 tons ; 1910, 127,409 tons ; 1911, 107,742 tons ; 1912, 102,190 tons ; 1913, 89,909 tons ; 1914, 99,800 tons ; 1915, 97,370 tons ; 1916, 86,891 tons ; and in 1917, 90,919 tons. The bulk of this material was deposited on the tips at Clayton and Harpurhey and on Carrington and Chat Moss Estates. It is composed principally of dry ashes, clinkers, and street sweepings. During last year 15,613 tons of material was sent to Carrington Estate and 39,321 to Chat Moss Estate.

Yours faithfully,

R. WILLIAMSON,

Superintendent.

Dr. Niven,

Medical Officer of Health,

Town Hall, Manchester.

TABLES.

TABLE A.—MANCHESTER, 1916.

CAUSES OF DEATH AT DIFFERENT LIFE PERIODS IN THE 52 WEEKS OF THE YEAR

PERSONS.—(MALES AND FEMALES.)

CAUSES OF DEATH	AGES AT DEATH													
	All Ages	UNDER 5 YEARS		5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and
		0 to 1	1 to 5											
All Causes	10999	1732	1220	254	206	236	244	550	955	1364	1503	1699	875	16
A.—GENERAL DISEASES	4368	959	666	138	99	152	147	296	473	532	515	300	85	
B.—LOCAL DISEASES	5576	550	484	81	78	72	87	230	445	760	935	1213	561	8
C.—OTHER SPECIFIED DIS:	2	...	1	...	...	...	...	...	...	...	1	...	...	...
D.—ILL-DEFINED DISEASES	608	158	11	2	1	...	...	1	...	2	7	147	208	7
E.—VIOLENT DEATHS	445	65	58	33	28	12	10	23	37	70	45	39	21	
A.—General Diseases.														
Smallpox.. Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Smallpox.. Not Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Smallpox.. No Statement	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cowpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chickenpox	4	2	2	...	...	...	...	...	...	...	...	...	...	...
Measles	179	42	128	7	1	...	...	...	...	...	1	...	...	...
Epidemic Rose Rash	3	1	1	...	1	...	...	...	...	...	...	...	...	...
Scarlet Fever..	35	2	22	8	1	2	...	...	...	...	...	...	...	...
Typhus	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Relapsing Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Influenza	133	8	5	3	1	3	2	3	12	24	25	25	20	
Whooping Cough	300	108	180	12	...	...	...	...	...	...	...	...	...	...
Mumps	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria and Memb: Croup	67	4	40	18	4	...	1	...	...	...	...	...	...	...
Poliomyelitis	3	1	1	1	...	...	...	...	...	...	...	...	...	...
Cerebro-spinal Fever	7	2	1	1	...	1	1	...	...	1	...	...	...	...
Simple Cont: Fever	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	23	...	...	1	...	2	3	3	5	5	2	1	1	...
Asiatic Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Diarrhœa	122	77	40	1	...	...	...	...	...	1	3	...	...	...
Diarrhœa	190	140	39	...	...	...	...	1	...	1	5	2	2	...
Dysentery	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Malarial Fever	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Actinomycosis	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pelagra	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hydrophobia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glanders	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anthrax	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetanus	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Syphilis	76	61	8	1	...	...	...	2	1	1	1	1	...	...
Gonorrhœa, Strict: Urethra	9	...	...	...	...	...	1	...	2	2	4	...	...	...
Puerperal.. Septicæmia	3	...	...	...	...	...	...	2	1	...	...	...	...	...
Puerperal.. Pyæmia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal.. Phlegmasia Dol:	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal.. *Fever*	16	...	...	...	...	...	3	9	4	...	...	...	...	...
Infective Endocarditis	11	...	...	...	2	...	...	2	4	2	...	1	...	...
Epidemic Pneumonia / Pneumonic Fever	2	...	...	...	1	...	...	...	1	...	...	...	...	...
Erysipelas	14	1	...	...	1	...	...	1	...	2	7	1	1	...
Septicæmia (not puerp:)	4	1	1	...	...	...	...	1	...	1	...	...	...	...
Pyæmia (not puerp:)	2	1	...	...	...	...	...	...	...	...	1	...	...	...
Phlegmon	9	3	...	...	...	...	...	...	...	3	1	2	...	...
Phagedæna	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Septic Diseases	2	1	...	...	...	...	...	...	...	1	...	...	...	...
Tubercular Phthisis	1106	4	24	19	28	96	97	202	254	221	116	40	4	
Phthisis	132	...	...	2	5	10	9	20	39	26	17	3	1	...

TABLE A, 1916—*continued.*

CAUSES OF DEATH	Ages at Death													
	All Ages	Under 5 Years		5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
		0 to 1	1 to 5											
.—General Diseases— *continued*														
ercular Meningitis	133	10	65	26	15	6	5	1	2	...	2	1	...	...
ercular Peritonitis	73	6	29	14	7	6	1	5	3	2	...	...	...	...
es Mesenterica	20	8	8	1	1	1	...	1	...	...	...	...	...	...
us	1	...	...	...	...	...	1	...	...	...	...	...	...	...
ercle of other organs	70	5	10	6	4	10	5	7	6	7	3	3	4	...
eral Tuberculosis	51	7	16	10	6	2	...	2	5	1	1	1	...	...
fula	...	...	...	...	...	...	...	...	...	...	...	...	...	...
asitic Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	...
vation	...	...	...	...	...	...	...	...	...	...	...	...	...	...
rvy	...	...	...	...	...	...	...	...	...	...	...	...	...	...
holism, Delirium Tremens	25	...	...	...	...	...	...	1	7	9	7	1	...	...
um, Morphia Habit	...	...	...	...	...	...	...	...	...	...	...	...	...	...
maine Poisoning	1	...	...	...	...	...	...	...	1	...	...	...	...	...
ustrial soning — Lead	3	...	...	...	...	...	...	...	...	1	...	2	...	...
ustrial soning — Phosphorus	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ustrial soning — Arsenic, &c.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
eum: Fever, Acute Rheum:	48	...	1	1	11	4	3	8	11	4	4	...	1	...
eumatism of Heart	...	...	...	...	...	...	...	...	...	...	...	...	...	...
onic Rheumatism	28	...	...	...	1	...	1	...	5	3	9	6	3	...
eum: Arthritis, Rheum: Gout	14	...	...	...	1	...	...	...	...	2	2	7	2	...
ut	4	...	...	...	...	...	...	...	1	1	...	1	...	1
rcinoma	644	1	...	...	...	...	2	10	72	159	210	157	31	2
coma	51	2	2	1	1	5	2	3	6	10	11	7	1	...
ancer," Malignant Disease	99	...	...	...	1	...	...	4	13	18	40	18	5	...
kets	31	7	21	3	...	...	...	...	...	...	...	...	...	...
rpura	3	...	2	...	...	...	1	...	...	...	...	...	...	...
emophilia, Hæm: Diathesis	2	...	1	...	...	...	...	...	...	...	...	1	...	...
æmia, Leucocythæmia	66	3	3	1	...	2	3	2	10	15	16	8	3	..
betes Mellitus	77	...	1	...	3	2	6	6	8	8	26	11	6	...
her Constitutional Diseases	...	...	...	...	...	...	...	...	...	...	...	...	...	..
mature Birth	317	317	...	...	...	...	...	...	...	...	...	...	...	...
ngenital Defects	73	59	10	1	3	...	...	...	...	...	...	...	...	...
ury at Birth	35	35	...	...	...	...	...	...	...	...	...	...	...	...
electasis	28	28	...	...	...	...	...	...	...	...	...	...	...	...
nt of Breast Milk	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ething	14	10	4	...	...	...	...	...	...	...	...	...	...	...
hers of Early Infancy	1	1	...	...	...	...	...	...	...	...	...	...	...	...
—Local Diseases.														
Nervous System.														
flammation of Brain	74	15	27	6	9	3	3	3	1	6	...	1	...	...
ftening of Brain	7	...	...	...	...	...	...	...	...	...	3	3	1	...
neral Paraly: of Insane	61	...	...	...	...	1	...	10	16	26	6	2	...	...
sanity (not puerperal)	125	1	2	1	1	1	2	4	10	15	25	36	25	2
lorea	1	...	...	...	...	1	...	...	...	...	...	...	...	...
pilepsy	72	...	5	1	2	6	5	13	8	9	11	9	3	..
nvulsions	74	57	17	...	...	...	...	...	...	...	...	...	...	..
ryngismus Stridulus	6	3	2	1	...	...	...	...	...	...	...	...	...	...
comotor Ataxy	5	...	...	...	...	...	...	...	1	2	1	1	...	...
s: of Spinal Cord	40	...	1	2	2	1	...	2	10	10	6	3	3	...
euritis	10	...	...	...	...	...	...	2	5	...	2	1	...	...
ain Tumour	23	...	...	4	1	...	3	4	5	3	1	2	...	...
ervous System (other Dis :)	13	...	...	...	1	...	...	1	1	2	2	4	1	1
Diseases of Special Sense Organs.														
itis, Mastoid Disease	18	2	2	1	2	4	...	3	2	2	...	...	...	...
istaxis, Nose Disease	1	...	1	...	...	...	...	...	...	...	...	...	...	..
phthalmia, Eye Disease	...	...	...	...	...	...	...	...	...	...	...	...	..	..

TABLE A, 1916—*continued.*

CAUSES OF DEATH	All Ages	Under 5 Years: 0 to 1	Under 5 Years: 1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
	Ages at Death													
3. Diseases of Heart.														
Valvular Dis: Endocarditis	434	2	1	2	13	12	11	35	61	88	92	92	23	2
Pericarditis	7	...	1	...	1	...	...	...	...	4	1	...	...	...
Hypertrophy of Heart.....	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Angina Pectoris	28	...	...	...	...	..	...	...	2	7	4	11	1	3
Dilatation of Heart	92	...	2	...	2	1	1	...	4	17	14	31	18	2
Fatty Degen: of Heart	34	...	...	...	...	...	...	...	3	10	13	6	1	1
Syncope, Heart Disease.....	429	4	2	2	4	5	9	11	36	79	94	122	54	7
4. Dis: of Blood Vessels.														
Cerebral Hæmorrhage.....	448	1	2	...	...	1	1	3	15	71	115	167	66	6
Apoplexy, Hemiplegia.....	105	...	...	...	...	...	1	3	5	13	28	33	18	4
Aneurism	23	...	...	...	...	...	...	...	4	8	3	5	3	...
Senile Gangrene	20	...	...	...	...	...	...	...	...	1	5	5	8	1
Embolism, Thrombosis	39	...	...	...	...	...	...	2	6	3	11	8	8	1
Phlebitis.....	3	...	...	...	...	...	...	...	...	...	...	2	1	...
Varicose Veins	6	...	...	...	...	...	...	...	...	2	2	2	...	...
Blood Vessels (Other Diseases)	135	...	...	...	...	...	...	1	3	7	29	56	28	11
5. Dis: of Respiratory Sys:														
Laryngitis	7	1	3	1	...	...	...	...	...	...	1	1	...	...
Memb: Laryng: (Not Diphth:)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Croup.....	1	1	...	...	...	...	...	...	...	...	...	...	...	...
Larynx (Other Dis:)	2	...	1	...	...	...	...	...	...	1	...	...	...	...
Bronchitis	1,207	176	91	6	4	1	2	15	55	113	175	337	205	27
Pneumonia { Lobar-Croupous.	355	19	36	9	5	11	17	32	43	70	61	44	8	...
Pneumonia { Broncho-Lobular.	557	175	230	23	5	1	2	6	11	18	32	38	11	5
"*Pneumonia*".....	32	3	3	1	1	1	...	5	3	5	3	7	...	...
Emphysema, Asthma	22	...	1	...	...	...	...	2	3	6	5	3	2	...
Pleurisy	40	1	7	1	...	...	1	5	6	7	5	5	1	1
Fibroid Disease of Lung.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Respiratory Dis: (Other)	32	1	2	...	...	...	1	1	3	3	4	8	9	...
6. Dis: of Digestive Sys:														
Tonsillitis, Quinsy	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Mouth, Pharynx	15	6	3	...	...	...	...	...	1	...	3	1	1	...
Gastric Ulcer.....	55	...	...	...	...	2	1	5	12	16	9	7	3	...
Gastric Catarrh.....	11	4	1	...	...	...	...	...	...	1	1	1	3	...
Stomach (Other Dis:).....	54	23	7	1	...	...	...	...	6	3	6	6	1	1
Enteritis.....	26	...	1	1	1	...	...	2	6	4	2	7	2	...
Gastro-Enteritis.....	23	...	7	4	...	...	...	...	2	1	4	2	3	...
Appendicitis, Perityph :	54	...	2	5	11	7	6	4	5	10	3	1	...	...
Hernia	47	2	1	...	...	1	1	...	2	7	11	17	5	...
Intestinal Obstruct:.....	26	3	...	...	1	2	1	4	2	4	4	3	2	...
Other Diseases of Intestines ...	16	8	1	...	...	...	...	1	...	...	3	2	1	...
Peritonitis	16	1	2	2	1	1	1	1	1	3	...	1	2	...
Cirrhosis of Liver	53	...	...	...	...	...	...	2	9	10	20	10	2	...
Liver and Gall Bladder (O.D.).	34	9	1	...	...	1	...	1	4	3	7	7	1	...
Digestive System (Other Dis:)...	23	15	3	...	...	...	...	2	...	...	1	1	1	...
7. Dis: of Lymphatic and Ductless Glands.														
Spleen, Disease of.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lymphat: Syst: (Other Dis:)...	20	1	2	...	1	1	2	2	5	2	1	3	...	...
Thyroid Body (Other Dis:) ...	2	...	...	...	1	...	...	...	...	1	...	...	...	...
Supra Renal Caps: (Dis: of)...	5	...	...	...	...	...	...	...	1	2	2	...	...	...
8. Diseases of Urinary System.														
Nephritis Ac:, Uræmia	83	1	9	4	6	4	3	8	5	12	19	9	3	...
Ch: Bright's Dis: Albumin :...	252	...	2	1	3	1	5	10	37	52	70	53	16	2
Calculus.....	16	...	1	...	...	...	...	1	1	4	2	4	3	...
Bladder and Prostate Dis: ...	48	1	...	...	...	...	...	1	2	5	8	22	6	3
Urinary Syst: (Other Dis:) ...	8	2	...	...	...	...	...	...	1	2	...	1	2	...

TABLE A, 1916—*concluded.*

CAUSES OF DEATH	All Ages	Under 5 Years: 0 to 1	Under 5 Years: 1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
	Ages at Death													
Diseases of Generative System.														
varian Tumour	6	...	1	...	...	...	...	1	2	...	...	2	...	...
ther Dis : of Ovary	...	...	...	...	...	...	...	...	...	...	...	...	...	...
terine Tumour	4	...	...	...	...	...	...	...	1	2	1	...	...	...
ther Dis: of Uterus and Vagina	4	...	...	...	...	...	...	1	2	...	...	1	...	...
isord : of Menstruation	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ener: and Mam: Orgs: (other)	12	...	...	...	...	1	2	5	1	2	...	1	...	...
. Diseases of Pregnancy and Childbirth.														
bortion, Miscarriage	1	...	...	...	...	...	1	...	...	...	...	...	...	...
uerperal Mania	1	...	...	...	...	...	...	1	...	...	...	...	...	...
uerperal Convulsions	8	...	...	...	...	1	2	2	3	...	...	...	...	...
lacenta Præv: Flooding	13	...	...	...	...	...	2	5	6	...	...	...	...	...
ther Ac: of Preg: & Childbirth	11	...	...	...	...	...	...	7	3	1	...	...	...	...
. Diseases of Locomotor System.														
aries, Necrosis	1	...	...	...	...	...	...	...	...	1	...	...	...	...
rthritis, Periostitis	8	1	...	...	...	...	...	...	...	1	2	3	1	...
ocomotor Sys : (Other)	7	1	...	2	...	...	...	...	1	...	...	2	1	...
. Diseases of the Skin.														
lcer, Bedsore	2	...	...	...	...	...	...	...	...	...	...	...	2	...
czema	4	2	...	...	...	...	...	1	...	...	1	...	..	...
emphigus	9	8	...	...	...	...	...	...	...	...	...	...	1	...
kin Diseases (other)	8	...	1	...	...	...	1	...	1	2	1	1	1	...
.—Other Specified Diseases	2	...	1	...	...	...	...	...	...	...	1	...	...	...
.—Ill-defined and not Specified Diseases.														
trophy, Debility	164	153	11	...	...	...	...	...	...	...	...	...	...	...
ld Age	429	...	...	...	...	...	...	...	...	...	6	145	207	71
ropsy, Ascites, Anasarca	3	1	...	...	...	...	...	...	...	...	1	...	1	...
umour	2	...	...	1	...	...	...	...	...	1	...	...	...	...
bscess	5	1	...	1	1	...	...	...	...	...	...	2	...	...
æmorrhage	1	...	...	...	...	...	...	1	...	...	...	...	...	...
dden (cause unascertained)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ther Ill-defined	4	3	...	...	...	...	...	...	...	1	...	...	...	...
E.—Violent Deaths.														
Accident.														
Mines and Quarries	1	...	...	...	...	...	...	...	...	1	...	...	...	...
y Vehicles: On Railways	11	...	...	...	...	...	1	1	3	5	...	1	...	...
y Vehicles: In Streets	51	...	4	1	4	4	3	1	2	12	9	7	4	...
hips, Boats, Docks (not Drowning)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
uilding Operations	...	...	...	...	...	...	...	...	...	...	...	...	...	...
achinery	4	...	...	...	1	1	...	...	...	1	1	...	...	...
eapons and Implements	...	...	...	...	...	...	...	...	...	...	...	...	...	...
urns and Scalds	91	5	37	17	11	1	2	2	2	4	4	3	3	...
oison, Poisonous Vapours	4	...	...	...	...	...	...	...	...	1	1	...	2	...
rowning	42	...	5	8	2	2	1	4	8	3	6	3	...	...
affocation	67	56	4	...	...	...	...	3	...	...	1	2	1	...
alls	109	...	5	6	7	1	1	2	13	25	17	19	10	3
eather Agencies	4	...	1	...	1	...	...	1	...	1	...	...	...	...
therwise or not Stated	28	...	2	1	2	3	1	5	4	6	2	1	...	1
Homicide.	6	4	...	...	...	...	...	1	...	1	...	...	...	...
Suicide.	26	...	...	...	...	...	1	3	4	10	4	3	1	...
Execution.	1	...	...	...	...	...	...	...	1	...	...	...	...	...

TABLE D.

CITY OF MANCHESTER, 1916.—CAUSES OF DEATH IN INFANCY AND CHILDHOOD.

CAUSES OF DEATH	UNDER ONE YEAR			Total under One Year	ONE AND UNDER FIVE YEARS				Total under Five Years
	Under 3 months	3–6 months	6–12 months		1–	2–	3–	4–	
All Causes	**958**	**288**	**486**	**1,732**	**651**	**279**	**160**	**130**	**2,95**
Measles	3	2	37	42	80	28	12	8	17
Scarlatina	1	...	1	2	5	7	3	7	2
Whooping Cough	20	24	64	108	93	46	23	18	28
Diphtheria (Memb: Croup)	...	...	4	4	12	9	9	10	4
Fever (various forms)	...	1	3	4	...	2	...	...	
Diarrhœal Diseases	81	67	69	217	68	7	2	2	29
Syphilis	43	9	9	61	3	4	...	1	6
Tabes Mesenterica and Tuberc. Peritonitis	4	4	6	14	17	10	3	7	5
Tubercular Meningitis	...	2	8	10	26	16	13	10	7
Tuberculosis (other)	2	3	11	16	23	15	10	2	6
Premature Birth	312	3	2	317	...	...	...	...	31
Teething	...	1	9	10	4	...	...	...	1
Convulsions	39	9	9	57	12	1	2	2	7
Brain Diseases (other)	4	5	10	19	15	8	8	6	5
Lung Diseases	113	95	169	377	227	78	45	24	751
Atrophy, Marasmus	112	24	17	153	7	4	...	...	164
Found Dead in Bed (overlaid)	33	14	5	52	...	...	..	...	52
Suffocation	3	1	...	4	2	2	...	...	8
Violence (other forms)	4	2	3	9	15	13	13	13	63
Ill-defined Causes	1	3	1	5	...	...	...	...	5
Unclassified	183	19	49	251	42	29	17	20	359

TABLE J, 1916.

Infantile Mortality in the City, and its Three Main Divisions.

Death-rates under One Year per 1,000 Births.

Causes of Death	City of Manchester	Manchester Township	North Manchester	South Manchester
All Causes	111·24	146·65	97·56	106·77
Measles	2·70	2·18	1·61	3·42
Whooping Cough	6·94	10·19	5·98	6·37
Other Com: Infectious Diseases†	0·90	0·73	1·38	0·71
Diarrhœal Diseases	13·93	30·57	8·74	11·21
Tubercular Diseases‡	2·57	4·00	1·38	2·71
Convulsions	3·66	5·82	1·61	4·01
Other Nervous Diseases§	1·22	0·73	1·15	1·42
Lung Diseases	24·21	35·30	22·55	21·47
Premature Birth.....	20·36	18·92	19·33	21·36
Atrophy, &c. ‖	9·83	10·55	11·51	8·73
Suffocation	0·45	0·36	0·46	0·47
Found dead in bed (overlaid) ...	3·34	3·28	3·22	3·42

† These are Smallpox, Scarlatina, Diphtheria, Membranous Croup, and various forms of "Fever," cluding the chief forms of Typhus and Typhoid.

‡ These are Phthisis, Tubercular Meningitis, Tabes Mesenterica, and General Tuberculosis crofula).

§ These are Meningitis, and other diseases of the Brain and Spinal Cord.

‖ These are such ill-defined causes as Atrophy, Marasmus, Debility, Inanition, &c.

TABLE K, 1916.—CITY OF MANCHESTER. ANNUAL RATES OF MORTALITY PER 1,000 PERSONS LIVING AT ALL AGES, IN THE CITY OF MANCHESTER AND IN ITS STATISTICAL DIVISIONS, FROM CERTAIN DISEASES AND GROUPS OF DISEASES.

CAUSES OF DEATH	City of Manchester	Manchester Township	North Manchester	South Manchester	City of Manchester Average of 10 years 1906-1915
All Causes	14·58	22·88	12·11	13·77	17·73
Smallpox	...	...	...	...	...
Measles	0·24	0·25	0·14	0·28	0·53
Scarlet Fever	0·05	0·13	0·05	0·02	0·15
Typhus Fever	...	...	...	...	...
Influenza	0·18	0·12	0·18	0·19	0·15
Whooping Cough	0·40	0·76	0·34	0·34	0·35
Diphtheria and Memb : Croup.	0·09	0·13	0·10	0·07	0·17
Ill-defined Fever	0·00	...	...	0·00	0·00
Enteric Fever	0·03	0·06	0·02	0·03	0·09
Diarrhœal Diseases	0·41	1·15	0·29	0·29	0·90
Puerperal Fever	0·03	0·04	0·04	0·01	0·03
Erysipelas	0·02	0·01	0·01	0·02	0·03
Pyæmia, Septicæmia	0·01	0·02	0·01	0·01	0·03
Phthisis (Tuberc : Pulmon :)	1·64	3·13	1·20	1·49	1·67
Tubercular Meningitis	0·18	0·38	0·13	0·15	0·25
Tuberc : Periton : Tabes Mes :	0·12	0·26	0·07	0·12	0·13
Tuberculous Dis : (other)	0·16	0·26	0·14	0·15	0·19
Alcoholism	0·03	0·08	0·01	0·03	0·08
Cancer	1·05	1·18	0·89	1·10	0·93
Rheumatic Fever	0·06	0·10	0·06	0·06	0·06
Premature Birth	0·42	0·48	0·39	0·42	0·60
Nervous Diseases	0·48	0·79	0·39	0·45	0·92
Heart and Blood Vessels Diseases	2·39	3·23	2·08	2·34	2·45
Bronchitis	1·60	2·93	1·32	1·41	1·72
Pneumonia	1·25	2·21	0·97	1·16	1·89
Respiratory Diseases (other)	0·14	0·21	0·10	0·14	0·19
Digestive Organs (Diseases of)	0·60	0·78	0·54	0·59	0·78
Urinary Organs (Diseases of)	0·54	0·68	0·45	0·55	0·53
Old Age	0·57	0·75	0·48	0·57	0·51

Rates per 1,000 births—Puerperal Fever 1·22, Childbirth 2·18.

		Ancoats	Central	St. George's	Cheetham	Crumpsall	Blackley	Harpurhey	Moston	Newton	Bradford	Beswick	Clayton	Ardwick	Openshaw	Gorton (West)	Rusholme and Kirkmanshulme	Chorlton-upon-Medlock	Hulme	Moss Side	Withington	Levenshulme	Gorton	TOTALS
Complaints to Sanitary Superintendent ...		716	147	1334	1233	92	67	192	96	323	710	339	146	373	159	225	341	540	1794	193	279	79	253	9,631
Inspections of	Dwelling-houses	2109	1145	2140	1735	1105	942	1002	893	2392	374	793	163	2808	796	2563	1682	1004	3176	1461	1646	809	1869	32,607
	Newly-infected Dwelling-houses	539	139	454	419	45	73	47	335	462	570	135	129	397	319	108	390	491	717	228	310	214	396	6,917
	Cellars	3	11	...	193	...	...	...	...	...	...	...	...	...	...	...	...	...	215	...	...	...	...	422
	Schools	2	4	1	9	1	1	...	1	3	1	...	...	38	2	...	2	13	55	2	2	...	...	137
	Factories and Workshops	11	16	26	74	6	3	3	2	63	6	1	6	7	...	59	10	6	150	21	1	18	...	489
	Lodging-houses	2301	4336	3883	2859	8	5	...	58	138	347	198	20	577	78	49	305	5807	3213	310	...	16	11	24,519
	Offensive Trades	5	5	53	67	...	11	...	2	15	13	...	2	...	...	...	1	3	112	...	...	8	159	456
	Dairies and Milkshops	198	436	265	300	70	100	84	60	185	178	76	83	281	171	258	224	515	412	344	117	200	445	5,002
	Ice Cream Manufactories	1229	23	168	...	...	...	2	...	2	20	...	1	70	20	46	4	39	22	...	2	...	...	1,648
	Bakehouses	70	63	77	169	12	36	72	54	69	26	28	17	53	85	41	114	169	159	139	126	132	145	1,856
	Canal Boats	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,232
	Slaughter-houses	...	...	...	7	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	2	7	4	25
	Tips for Refuse	...	1	6	5	2	...	7	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	23
	Miscellaneous Inspections	2907	1149	322	1255	458	160	138	14	1104	152	846	115	494	1755	102	334	446	869	842	257	339	827	14,885
	Stables, &c.	493	209	301	300	269	34	32	1	99	1	40	3	320	1	158	78	364	510	93	87	150	889	4,432
	Factories and Workshops by Shop Hours, &c., Inspectors	571	4359	619	1615	23	78	177	82	294	117	68	111	312	186	311	398	1740	824	371	351	144	184	12,935
	Shops by Shop Hours, &c., Inspectors	302	1301	333	287	41	57	185	128	184	308	190	92	710	748	593	497	647	229	129	1203	232	760	9,156
Infected Rooms Disinfected		1565	245	1297	1696	169	269	292	237	758	623	239	317	902	630	1215	390	696	1613	474	638	344	686	15,295
Infected Dwellings Re-inspected		1429	365	1641	1617	143	259	343	252	544	570	475	295	1198	1382	1138	821	1521	2058	761	416	817	665	18,710
Drains Tested by Water		43	105	15	48	20	49	49	6	19	27	3	17	38	4	16	11	45	97	22	32	6	9	681
Smoke Abatement	Observations made	72	60	17	21	12	49	9	7	56	24	6	84	30	35	38	4	23	32	4	6	3	8	600
	Proceedings before Magistrates	10	6	3	3	2	5	...	3	1	...	1	4	5	1	...	...	...	...	1	...	1	..	46
Food Adulteration	Samples Collected for Analysis	112	445	104	136	24	40	47	31	72	50	18	49	93	139	97	122	383	306	294	230	112	119	*3,036
	Proceedings before Magistrates	7	25	1	10	2	4	1	...	4	...	...	...	6	6	...	...	12	3	2	11	12	2	108
Ashpits reported to Cleansing Department for emptying		...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	2	14	...	...	10	...	27
Receptacles reported to Cleansing Department for emptying		1	5	3	25	2	...	...	1	5	...	...	...	1	3	...	3	7	10	19	2	...	...	87
Notices issued for Abatement of Nuisances.		717	352	637	847	126	303	447	175	590	380	154	200	516	267	618	354	738	1092	175	179	97	343	9,307
Letters written for Abatement of Nuisances		95	120	136	114	10	30	21	16	56	48	8	50	40	39	27	16	104	118	6	17	3	9	‡1,083
Reports made to Medical Officer of Health		16	9	5	24	2	22	58	...	3	...	...	...	11	3	...	...	31	6	4	5	...	68	267
Legal proceedings taken		25	21	28	40	...	1	3	7	7	11	3	4	15	11	6	4	38	22	...	...	...	3	†259
Total Nuisances abated		723	273	674	763	116	287	246	248	549	337	123	193	440	261	455	353	755	1063	160	201	113	331	8.664

* 13 Samples procured Outside the City. † 10 cases Infringement of Canal Boats Acts.

‡ In addition to these there were 2,778 circular letters sent to owners *re* defective water-closets and ashbins, and 2,053 orders on the Cleansing Department for new ashbins were sent to owners or contractors.

REPORT OF THE MIDWIVES SUPERVISING COMMITTEE FOR THE YEAR 1916.

The Midwives Supervising Committee present, for the information of the City Council, the following report of the operations carried on in Manchester during the year 1916 under the Midwives Act, 1902. All the usual tables have been prepared, but are again omitted for reasons of economy.

The number of midwives who gave notice of their intention to practice in Manchester during 1916 was 152 ; of these 26 reside without the City. In the course of the year two midwives died, four removed from the area, and one gave up practice on account of her age.

From returns made by the midwives 8,515 births were attended by them. The total registered births in the City numbered 15,570. It will thus be seen from these figures that about 55 per cent. were attended by midwives. This was the same figure as in 1915.

Inspection of Midwives.

342 visits were paid, and on 168 occasions midwives were interviewed at the Public Health Office. In 10 instances the houses were found dirty, and 23 bags were unsatisfactory and incomplete. Eleven registers were found to be not entered up to date.

Puerperal Infection.

During the year 1916, against an average of 101 cases and 24 deaths in the eleven years 1905-15, 99 cases of puerperal infection were notified, and of these 21 occurred after abortion or premature labour. Of the abortions 12 were at the second or third months of gestation, six at the fourth month, two at the seventh, and one at the eighth month of pregnancy.

The total fatal cases numbered 18, of which five were premature labours.

The attack-rate per 1,000 births was 6·36, whilst the case fatality per cent. was 17·2, against 22·3 the average for the years 1905-1915.

The mortality from Puerperal Fever per 1,000 births was 1·22, against an average of 1·26 in the preceding 10 years.

The usual figures prepared for Table C are as follows :—

	Number of Cases attended by					
	Midwives		Doctors		Midwife and Doctor	
	Attacks	Deaths	Attacks	Deaths	Attacks	Deaths
1916	50	8	49	10	99	18

Out of 99 cases notified 31 patients were nursed at home, and all recovered ; 62 cases were removed to Monsall Hospital and 44 recovered, the case mortality being 26·5. The remaining four cases were treated in other institutions, and all recovered.

Subsequent visits have been paid to the 82 women who recovered, and with the exception of five all were in good health.

The particulars as to the character of the labour and the results for 1916 are :—

	No. of Cases	Recovery	Death
Normal full term labour	50	44	6
Abnormal full term labour	28	22	6
Abortion or Premature	21	16	5

Suspension of Midwives.

Seventy-nine suspensions of midwives from their work occurred, chiefly on account of their having been in attendance on cases of puerperal infection or other septic conditions.

Records of calling in Medical Aid.

During the year 1916 the number of medical records received was 2,297, as compared with 2,313 in the previous year. The numbers under the various reasons given for having advised medical aid correspond to those in previous years (see table herewith).

NUMBER OF CASES OCCURRING IN 1916 IN WHICH THE MIDWIFE ADVISED THAT A REGISTERED MEDICAL PRACTITIONER SHOULD BE SENT FOR (RULE E 19). ALSO THE NUMBER OF APPLICATIONS FROM MEDICAL PRACTITIONERS FOR PAYMENT OF THEIR FEES FOR ATTENDING CERTAIN EMERGENCY CASES.

Period	Medical aid called in on account of the following causes, as stated by the Midwife			Total	*Application for Fees
Pregnancy	Abortions, miscarriages			9	1
	Deformed pelvis			12	..
	Loss of blood			7	1
	Other unusual features of pregnancy			23	1
Labour	Presentations	Head—Malpositions		30	6
		Breech	In primiparæ	..	2
			In multiparæ	15	..
			Para not stated	13	6
		Transverse		38	19
		Funis		21	13
		Unable to make out		5	2
	Tedious labour	Forceps used		15	108
		No record as to forceps		296	11
	Placenta	Retained		17	12
		Adherent		38	13
	Membranes retained			20	9
	Rupture of perineum			533	155
	Hæmorrhage	Ante partum		59	15
		Post partum		27	18
		Hæmorrhage—3rd stage		5	..
	Convulsions			12	3
	Complications			73	14
	Premature labour			17	..
Lying-in	Abdominal swellings			3	..
	Foul-smelling discharges			7	1
	Secondary post-partum hæmorrhage			3	..
	Rigor			7	..
	Rise of temperature above 100·4° F.			39	14
	Unusual swelling of breasts			6	..
	Progress unsatisfactory or complications			41	1
	Unspecified			3	..
Newly born Child	Injuries received during birth			3	4
	Obvious malformations			63	7
	Tongue-tied			13	1
	Feebleness of Child			139	15
	Inflammation of eyes and eyelids			469	36
	Skin eruption			50	5
	Illness from prematurity			57	27
	Malignant jaundice			28	8
	Inflammation about the umbilicus			15	..
	Unspecified or complications			66	4
	TOTALS			2,297	532

* These applications have been classified according to the conditions requiring treatment found by the medical practitioner.

Payment of Fees.

Arising out of the summoning of medical aid 532 applications were received from medical practitioners for payment of their fees. After careful investigation the Committee decided to pay in 416 cases sums amounting to £481 4s. 6d. The amount paid in 1915 was £452 12s. The majority of the 116 rejected applications was owing to the income being above the scale.

The Committee continued up to April 10th, 1916, to pay the fees of midwives for attendance on the confinements of the wives and widows of soldiers and sailors, and of other women in need of assistance as a result of the War. 351 applications were received, and in 307 of these fees were paid, the total amount being £197 17s. 6d. Out of the 44 applications which were rejected 32 of the families had incomes above the scale.

Still-births.

The total number of still-births reported to the Office during the year was 617, as against 640 in the previous year. Out of the 617 still-births 389 occurred in the practice of doctors (these are ascertained from the Cemeteries returns) and 228 in the practice of midwives. The percentage of still-born children is 3·4; in 1915 it was 3·3.

The summary of causes to which it seemed reasonable to credit the still-births shows the principal numbers to be:—

Definite history of ill-health of the mother	65
Accident to the mother before confinement	28
Breech presentations, full time	15
Drink	13
Shock	10
"Cord round neck"	10

The still-birth rate was highest in Beswick, Bradford, Openshaw, Ardwick, West Gorton, and Hulme.

Deaths of New-born Children.

Notifications of 40 deaths of new-born children before a medical practitioner could be obtained were received and investigated. In 37 instances inquests were held. In 16 cases "want of attention at birth" was the verdict, and in 11 "accidental suffocation."

Death of the Mother.

Two cases of death of mother before a medical practitioner could be obtained were notified during the year. The cases occurred in the districts of St. George's and Bradford. Inquests were held, the verdicts being "Pulmonary Thrombosis" and "Pulmonary Embolism" respectively.

Charges of Malpractice, Negligence, or Misconduct.

In considering the various reports submitted to them the Midwives Supervising Committee found it necessary to make only one report under this heading to the Central Midwives Board. It concerned a midwife whose house was invariably dirty. Her records of temperatures and pulses were always alike, and she is lacking in general knowledge of the Rules. The Board decided to remove her name from the Midwives Roll.

Work of the Special Nurses.

The work done by the two Nurses during the year 1916 has been tabulated, and is as follows :—

Still-births investigated	239
Deaths of newly-born infants investigated	35
Cases of Puerperal Fever nursed at home	28
Nursing visits paid to 28 cases and to patients with raised temperatures	670
Old Puerperal Fever cases investigated to ascertain subsequent histories	161
New Puerperal Fever cases investigated to ascertain histories	96
Nursing visits paid to cases of Eczema	15
,, ,, ,, ,, Mammary Abscess	31
,, ,, ,, ,, Phlebitis	55
,, ,, ,, ,, Erysipelas	2
Number of cases of Skin affection in newly-born infants	122
Nursing visits paid to these 122 infants	797
Number of nursing visits paid to cases of Spina Bifida	76
Special investigation visits concerning medical records, including visits paid to doctors	115
Nursing visits paid for midwives during suspension and when unable to obtain a qualified substitute	28
Visits to cases of Ophthalmia Neonatorum (assistance rendered to Ophthalmic Nurse)	31
Visits to special cases in company with Executive Officer	7
	2,508

Revision of the Rules of the Central Midwives Board.

The suggestions made to the Central Midwives Board in connection with the revision of the Rules of the Board (see Report for the year 1915) were not adopted with the exception of that referring to the training of pupil midwives, Rule C 1 (3): "No period of less than six months shall be deemed sufficient for the purpose."

Copies of the revised rules have been sent to each midwife practising in Manchester.

On behalf of the Committee,

(Signed) A. W. Chapman,

Chairman.

Town Hall, Manchester,
24th May, 1917.

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